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ABSTRACT

Focusing on phases of college and other adult reading programs, the papers in this volume were drawn from the tenth annual meeting of the National Reading Conference held in 1960. Among the topics discussed in the 15 papers are the following: reading improvement in government, contributions of education to college and adult reading, the influence of psychology on the field of reading, reading and the language arts, freshman college English and the reading process, teaching machines and the reading program, measurement in reading, integration of reading instruction with regular college offerings, the relationship between interest and reading rate and between interest and reading comprehension, a portrait of college and adult readers in an urban area, research in reading at the University of Florida, and research on college and noncollege adult reading for the preceding year. The volume also contains an index to materials in the Auburn (Alabama) University reading laboratory, a bibliography for that facility, and a list of persons attending the conference. (FL)

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PHASES OF
COLLEGE AND OTHER ADULT
READING PROGRAMS

The
TENTH YEARBOOK
of The

NATIONAL READING CONFERENCE

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and

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OSCAR S. CAUSEY

This volume, the Tenth Yearbook of the National Reading Conference, is dedicated to Oscar S. Causey, Professor of Education and Director of the Reading Laboratory at Texas Christian University until his death on July 17, 1960. Oscar Causey was the founder and chairman of the executive committee of the Southwest Reading Conference which, under the impetus of his guidance and leadership, after several years grew into the present National Reading Conference. He gave much of himself in his constant efforts to make the annual Conference a success; and he had a definitely stimulating influence upon all who had the good fortune to be able to work closely with him. As one of this Yearbook's editors stated in the Winter, 1961, issue of the *Journal of Developmental Reading*, "Professor Causey's name has been inseparably linked with the National Reading Conference. It will be impossible to think of this group without thinking of Oscar S. Causey."

PREFACE

Papers presented at the tenth annual meeting, at Texas Christian University, of the National Reading Conference comprise the contents of this Yearbook, the tenth in the series. In keeping with the previous practice of having reports of specific reading improvement programs presented at annual meetings, programs at the U. S. Department of Agriculture and at Auburn University were treated in papers presented by George Stevens and Barbara Edwards, respectively. Mrs. Edwards' presentation included the detailed "Index" used in the Auburn University reading programs. Papers presented by Walter Hill, Alton Raygor, and George Schick were part of a symposium on contributions to college and adult reading programs from Education, Psychology, and English departments or divisions. Reading programs in connection with college freshmen English were also discussed in a paper by Rudolph Fiehler. A second symposium, one on measurement of reading abilities, involved papers by Frederick Davis, Albert Kingston, and Alton Raygor. Reports of specific research projects were made by Phillip Shaw, Dale Bryant, and Arthur McDonald. George Spache summarized a number of research projects in reading carried out at the University of Florida; and Emery Bliesmer again presented his annual review of research on college and other adult reading. Present and future possibilities of programmed learning were treated in a joint presentation by Earl Rankin and Donald E. P. Smith.

E. P. B.

A. J. K.

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Reading Improvement in Government

George L. Stevens and Edmund N. Fulker
Graduate School, U. S. Department of Agriculture

The purpose of this paper is to consider the scope and effectiveness of reading improvement in government. Under this general heading three main topics will be discussed: (1) What is the nature of the reading problem in government? (2) What efforts have been made to cope with the problem and how successful have these efforts been? (3) What long range problems arise in the administration of a reading improvement program in government, particularly as contrasted with a college program?

Reading Problem in Government

Perhaps the chief reading problem of the federal executive today centers around the volume of reading he must do. Surveys have indicated that top level administrators may spend as much as four hours a day just reading. Moreover, despite the length of time spent reading, many of these administrators are concerned about their reading and state that they are not reading everything they should. Many are barely able to keep up with their job reading and have no time for reading related to their field or general reading.

There are several reasons for this, but the most obvious is size. Within the past thirty years our federal government has steadily expanded in size and grown in complexity. The United States Government is larger than any single institution, enterprise or corporation in our country.

However, the communication system between and within agencies of the government has not kept pace with this rate of growth and increased complexity; and today top executives must read hundreds of directives and memos in order to keep their operation in harmony with the other related governmental functions.

To cite an example, a recent editorial in the Washington Post noted, "There are no fewer than 160 interdepartmental and inter-agency committees dealing with international affairs in addition to the National Security Council and its subordinate instruments." (3)

The great volume of reports produced by these committees must be coordinated by officials responsible for their evaluation and utilization. And this is by no means atypical for many agencies have such related or overlapping functions within the structure of modern government.

One or two instances will illustrate the problem. The Fish and Wild Life Service of the Department of the Interior and the Forest Service of the United States Department of Agriculture are really responsible for the same general area, the conservation of the flora and fauna of the nation. Though they approach the problem from different points of view, each must be well informed about the activities of the other.

Perhaps a more significant instance is the communication problem between the different branches of the Armed Forces. Each spends a good deal of time and money keeping tabs on the research and development being carried on by the others.

These few instances characterize the situation throughout the federal government. Scope of operation, complexity of organization, and interdependence of function all combine to produce a great mass of written communication.

Another aspect of the problem stems from the decentralized nature of many government agencies. The federal government is by its very nature national in scope, and there is in consequence a large volume of correspondence in the form of letters, regulations and reports between Washington agencies and their field representatives. The field representatives receive most of their guidance through written communications supplemented only by occasional visits from the Washington staff.

Within the past twenty or thirty years these regional offices of government agencies have continually expanded their operations and in many cases there are more people working in the field programs than there are in the central office in Washington, D.C.

There is a great deal of interest at the highest levels of government operation in the problem of expediting written communication between Washington and the field programs. Writing improvement has, of course, been helpful in simplifying

the problem, but even under the best of circumstances the e is still a very large reading load for the typical federal official.

As a consequence the federal executive is bombarded with regulations, memos, reports, studies and correspondence. To be effective in his job he must be well informed and to accomplish this he must try to keep abreast of this vast mass of reading material.

Volume, however, is not the only problem. Difficulties also arise from the unique position the executive in government occupies.

The federal executive is primarily concerned with the implementation of legislation and executive policy. He is engaged in the sensitive task of translating the abstract into the concrete. In carrying out this responsibility he is open to criticism from several sources—the congressional committees who review the activities of federal agencies, the special interest groups in Washington, and the general public.

On more than one occasion career civil service men have been made the scapegoat for unpopular policies and under these circumstances most government officials have become very cautious and deliberate in their reading. They frequently read every letter, memo and article with the same scrutiny they would an executive order.

All of these factors have encouraged an interest in reading improvement in government. Most officials recognize that they have a definite reading problem and for about ten years the interest in and popularity of reading improvement programs has steadily increased.

History of Reading Improvement in Government

Reading improvement in government had its origins in the Air Force Reading Program set up at the Pentagon in May, 1949. (2) In 1956, Dowell (1) reported 23 government reading programs in operation. At present there are some 12 full or part time reading improvement programs in government agencies in the metropolitan Washington area. The decrease in number should not be interpreted as a loss of interest since some of the reading programs have been consolidated for administrative purposes.

The first Pentagon course for adults had a rather narrow objective—the increase of reading speed with only passive reference made to comprehension. Gradually as more instructors gained experience and as they shared experiences and ideas the objectives in government reading improvement courses became broader and more realistic. The instructors began talking in terms of efficiency in reading, reading with a purpose and flexibility in reading. Trainees were helped to become more selective in what they read, more flexible, purposeful, and systematic in their reading. They were told to vary not only their reading speed, but also their level of comprehension, depending on the material to be read.

The reading improvement program of the Department of Agriculture has as its core a 30 hour reading course. The specific objectives of this course are to help each person improve his reading efficiency and develop his reading abilities to the fullest extent possible. In addition, each trainee is stimulated to develop his vocabulary, take better care of his vision, to better manage his reading load and to do more reading and broader reading.

At first the only attempt at evaluating reading abilities centered around a short test on fairly easy material to determine words per minute and, perhaps, a photograph of the eye movements of the trainee. Today many government reading programs include a battery of standardized and informal measures, individual interviews, and discussion sessions. Most courses solicit information about the trainees educational background, the kind and amount of reading he does, and his interests. Vocabulary tests of one form or another are generally given and most courses have some form of visual screening tests. An increasing number of programs use more than one type of reading test or measure and several programs have developed their own tests using materials directly related to the job interests of the trainees.

Instructors are generally becoming more sophisticated about their use and interpretation of reading tests. Each class period, each discussion, each test contributes to the instructor's understanding of the reading problems of the trainee and how he can best help him to improve his reading.

Along with broader objectives and continuous diagnosis, government reading programs are generally using a wider variety

of individualized teaching techniques and most, if not all, use some form of progress folder or personal record for motivational and guidance purposes. More agencies are developing their own teaching materials and adapting present materials to fit varying individual needs. There has been a marked trend away from excessive indiscriminate use of mechanical devices, especially group training devices which provide training at a distance.

Most programs use some form of pre- and post-training tests. Many use some form of evaluation questionnaire to sample intangible benefits.

Administering a Reading Improvement Program in Government

From the very beginning reading improvement instructors in government have kept close ties with the research and teaching of developmental reading being conducted by the colleges and universities. Most of the reading improvement programs in existence in Washington use the materials and textbooks which are in use in the college programs.

Certainly the people in government reading programs have kept in touch with reading programs being conducted by the colleges and universities in Washington, D.C., and to some extent throughout the United States.

In general one could say that reading improvement in government patterns itself pretty closely on existing college and university programs. There are, however, certain differences between the two kinds of programs which should be noted.

In the first place reading improvement in government is part of a training program and not educational in the strictest sense of that word. By this is meant that education, in a pure sense, is an end in itself, a kind of self realization through intellectual growth. The goal of education, or at least one very popular statement of it, is to assist the individual in the task of realizing his own unique self and his powers of creativity.

In government, as in industry, the objective of training is to make the employee more effective on the job. Reading improvement in the university is free to concern itself with individual growth. It can cover a wide range of reading materials from the

esthetic to the philosophical. Above all it can concentrate on the problem of understanding. In a sense, college developmental reading has a major goal—the task of teaching the student to think, i.e., to reason, to evaluate, to read critically. In a broad sense developmental reading enhances the student's ability to deal creatively with the esthetic and intellectual tradition of his culture.

But the training officer in government who sponsors a reading improvement program is chiefly interested in improving the ability of on the job reading of his personnel. This means that government programs, to be successful, must limit the kinds of reading material to those similar or related to administration and management. Literature and literary appreciation are not usually encouraged by those sponsoring and paying for the reading training.

Moreover the students themselves have a very practical attitude toward reading improvement. Most of them call it "speed reading" or "rapid reading", and nine out of ten on a pre-training questionnaire will express their reading problem as the need to read faster. The idea of reading fast is very popular with the professional people in government and one of the chief justifications for the reading training is that time can be saved by teaching employees to read faster. We are a very time conscious society and any thing that saves time is supposed to save money. One of the best ways to gain support for reading improvement at top executive levels is to stress the dollar and cents value of the hours saved by improving on the job reading.

Moreover it has been observed that reading programs which did not concentrate at least part of its program on saving time through speed reading or skimming or some related technique tend to lose the support of personnel and training officers even though the course may be very effective in improving comprehension or critical reading.

In other words a successful training program in government or industry must show some kind of tangible results which can be readily translated into a supposed monetary gain.

Another area of weakness in government sponsored reading programs is that of research. There is at present a large accumu-

lation of data about the adult reader which exists in the records of the several government sponsored programs. Because this data is about the reading improvement of adults, it might complement and enhance the extensive studies which have been made on the college student who takes a reading improvement course.

However, there has been a paucity of research coming out of the reading programs in the Washington, D.C., area and the existing data have never been properly evaluated. There are several reasons for the lack of research in the government programs. First of all is the problem of staff. The reading programs in government do not have staff assigned for research purposes nor do the persons supervising and instructing have enough time to do much research. Usually the job description of a reading improvement instructor will make no mention of research in outlining responsibilities. And once again we are faced with the basic difference between government and college programs. Training is not education and tends to restrict itself to narrow goals.

But beyond the problem of staff and the generally unfavorable climate for research, there is the important consideration of the student. Most adults, and particularly professional adults, do not respond well to extensive testing. Most of them want to learn to read better and are quite willing to work at the job of improving, but few respond favorably to long and difficult tests which, all too frequently, suggest that they cannot read as well as a college student. The adult is not as flexible as the college student and does not make a very cooperative subject.

In all fairness to the student it must be noted that many of them have been made test shy because of Civil Service examinations and personnel records which can affect their chances of promotion.

One of the now non-operating programs in government made the mistake of reporting in detail to the personnel officer the progress of individual students completing the reading improvement program. Within a short time applications for the training, which was voluntary, fell off, and the program was dropped.

The instructor of reading improvement in government must be concerned with application and production rather than with research and theory.

In summary, this paper has discussed the scope and effectiveness of reading improvement in government. Three main points about government reading programs have been brought out. First, government reading programs recognize that the reading problem of government officials is due to the quantity of reading they must do and to their poor reading habits, especially inflexibility. Second, government reading programs have sought to solve this problem by using various techniques and materials. The people who operate these programs have shared their experiences and have used this combined knowledge along with the research and literature in the field of developmental reading to improve and expand their courses. Third, governmental reading programs are a part of the government training program and as such are more limited in scope than college programs. Although the trainee may derive additional benefits from the course, the program is primarily concerned with increasing job efficiency through reading improvement.

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1. Dowell, R. Lawrence, "Techniques and Procedures in Government Reading Programs," in Oscar S. Causey (ed.), *Sixth Yearbook of the Southwest Reading Conference for Colleges and Universities*, Texas Christian University Press, Fort Worth, Texas, 1957, pp. 91-101.
2. Fulker, Edmund N., "Air Force Reading Training in the Pentagon," in Oscar S. Causey (ed.), *Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities*, Texas Christian University Press, Fort Worth, Texas, 1956, pp. 77-79.
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In The Dawning of Our Knowledge

Barbara Frederick Edwards

Auburn University

"No man can reveal to you aught but that which already lies half asleep in the dawning of your knowledge". (4:56)

My colleague, Mrs. Sanders, and I are delighted to take this opportunity of talking with you today in response to several questions you have asked us here at previous conferences in Fort Worth.

"How is it that your Reading Laboratory has grown from one class section in 1951 to fifteen sections one quarter of 1959, on a voluntary basis."

"How may we in our classes educate the whole person?"

"How might we individualize instruction in our reading classes — really?"

We would like to present to you an approach to college reading improvement which our Auburn staff feels holds promise not only for us but for others of you who might try it. Especially we would like you to see two of the major tools which aid us in this approach.

Our Situation in Reading

The framework we have chosen to describe our situation at Auburn, derived from the thought of Professor Schwab at the University of Chicago, is one which we believe would prove as useful in reporting research as in description of current programs.

1. *Milieu.* In many respects the Reading Improvement Program of Auburn University operates in a favorable milieu. Ours is the land-grant university of Alabama, and enrolls some 8,000 students, three-fourths of whom are men. The same proportion of men enroll in our reading classes. We draw students from all undergraduate schools of the University — Engineering, Science and Literature, Education, Architecture and the Arts, Home Economics, Agriculture, Chemistry, Pharmacy, and Veterinary Medicine.

Studies by our Student Guidance Service have shown in the last decade that reading is a critically important problem on

our campus, in that only 45 per cent of entering Auburn freshmen attain the national Type III median for entering freshmen on the *Cooperative English Test*, C2: Reading Comprehension, while only 26 per cent attain the national Type II median on that test. To meet this problem, a non-credit reading improvement course was begun in the department of psychology in Spring, 1951, on a volunteer basis. Fortunately those students who applied were mostly juniors, seniors, and graduate students, who were in a position to advertise the course. As time went on, an assistant dean even enrolled. Such a program continued with one class of 20 students meeting for one hour per day for from three to five hours each week, until in the spring of 1953 an official course carrying three hours of general elective credit was admitted to the catalog of Auburn under the title PG 310, Reading Improvement. Beginning in Fall, 1954, the program was expanded from 3 to 7 sections; and it has continued to grow until today we serve 800 to 900 students each year. Never do we catch up with the demand which is demonstrated by our waiting lists.

In our work we have enjoyed the backing of a campus-wide Faculty Council Committee on Reading Improvement. A quotation from one of their reports may demonstrate the breadth of their interest.

We recommend that all freshmen be re-tested for reading efficiency at the end of two or three quarters to discover relative progress in reading under the present program and under special reading improvement programs.

We consider that reading improvement is a responsibility of all departments of instruction. No special program should replace the instructor's contribution to his students' improvement in reading efficiency. We recommend that each department of instruction give attention to ways of encouraging better reading and study skills among its students by:

- (1) selection of texts that are well-written and appropriate in reading difficulty;
- (2) assignments that help students use text and references effectively;
- (3) systematic way of identifying and mastering the special vocabulary of the subject;
- (4) encouragement of related and wide reading;
- (5) encouragement of reading in professional journals. (2:6)

Also within the school of education, of which we are formally a part, a Committee on Reading is coordinating some of our functions with those of our embryo Reading Clinic and with the classes in teacher education which lead to a master's degree with specialization in reading.

2. *Subject-Matter.* As to our view of what reading is, we would differ with Woodworth when he wrote in 1938:

The reader is like a rotary printing press, or an automobile assembly line, that takes in raw material, performs a series of operations on it, and delivers a finished product. (11)

He does admit, however, that "The reading process is, to be sure, both more complex and more fluid and variable than that performed by a man-made machine." (11) Rather we would see our subject with Strang as not only a physical, but also a psychological, process:

Our perception of the new reading situation not only determines our approach to the book, chapter, or article; it also influences our selection of which book to read, which parts to read, what we get out of the reading, and what we remember. This perception guides our reading at every stage of the process. (10)

An apt example of the action of such perception and the consequent need for flexibility in reading comes from the very first paragraph of a current novel:

I divide the books Nero Wolfe reads into four grades: A, B, C, and D. If, when he comes down to the office from the plant rooms at six o'clock, he picks up his current book and opens to his place before he rings for beer, and if his place is marked with a thin strip of gold, five inches long and an inch wide, which was presented to him some years ago by a grateful client, the book is an A. If he picks up the book before he rings, but his place is marked with a piece of paper, it is a B. If he rings and then picks up the book, and he had dog-eared a page to mark his place, it is a C. If he waits until Fritz has brought the beer and he has poured to pick up the book, and his place was dog-eared, it's a D. I haven't kept score, but I would say that of the two hundred or so books he reads in a year not more than five or six get an A. (9:1)

3. *Teachers.* The staff of our reading program includes Mrs. Sanders, from three to five graduate teaching assistants (with undergraduate majors in psychology or education), and myself as supervisor. We work as a staff, meeting biweekly for seminars, but teaching in somewhat varied styles within the general frame of reference described later. Sections taught by graduate assist-

ants secure test gains nearly as great as do those taught by faculty or higher rank. Perhaps this is due in some measure to the co-operation and interchange of ideas among us.

4. *Learners.* The greatest strength of our program, we feel, is that every student enters by his own choice. For the past two years, each class in the university has contributed about equally to our enrollment, although a definite increase in the number of freshmen has been welcomed. We draw from all schools of the university and from all levels of reading ability. Although some faculty advisers and Student Guidance advisers recommend our course, we find that by far our greatest advertisers are the students who have completed the class!

A Student-Centered Program in Reading

Considering all these facts of our particular situation, and considering both the current concern over providing for individual differences (6) and the fact that the 1960 IRA Conference chose, for its "new frontiers", differentiating instruction to provide for the needs of learners, reading and mental health, and reading in relation to the total curriculum (3), we are evolving an approach to our teaching which Carl Rogers might claim as "student-centered". He has written:

We may state briefly our present concept of the role of the leader in an educational situation when the aim is to center the process in the developing aims of the students.

Initially the leader has much to do with setting the mood or climate of the group experience by his own basic philosophy of trust in the group, which is communicated in many subtle ways.

The leader helps to elicit and clarify the purposes of the members of the class, accepting all aims.

He relies upon the student desire to implement these purposes as the motivational force behind learning.

He endeavors to organize and make easily available all resources which the students may wish to use for their own learning.

He regards himself as a flexible resource to be utilized by the group in the ways which seem most meaningful to them, in so far as he can be comfortable operating in these ways . . . (7)

In our thinking, a complement to this concept of a leader-teacher has been set forth by Carter and McGinnis in their "principles governing the reading workshop":

1. Every student should know how well he reads and should select for himself the specific reading abilities he needs to acquire.
2. The student must understand that he can improve his reading ability and that the responsibility for doing so rests with him.
3. Each student should be given an opportunity to set up his own reading objectives and to attain them at his own rate and in accordance with his own plan.
4. Instructional materials should be simple, direct and specific.
5. The student should improve his reading ability as he does his regular academic work. "Busy work" should be avoided entirely.
6. Attention should be given to physical, emotional, and background factors which may affect reading performance.
7. The student should evaluate his own achievement at the beginning and end of the laboratory activity. (1:47)

In PG 310 Reading Improvement, then, we provide a corrective program in a small group situation with intensive testing and interviewing, in a group which meets one hour a day four days a week for ten weeks. This enables us to help each student discover the specific weaknesses and strengths in his reading, then to aid him to select, from a number of resources, materials at his reading level in various content fields, whether that level is fifth-grade or seventeenth. The student continually re-evaluates and advances to ever more difficult materials at his own pace. We feel the greatest assets of our program are threefold: (1) Every student enters by his own choice; (2) each student may tailor the course to his or her interests, needs, and objectives; and (3) we are continually building a library of materials and equipment for a vast range of reading levels and skills, all immediately available to the student during classes.

Here are our chief tools: Toward the second objective above, each student keeps a log of his daily work which he calls "My Reading Improvement Record". (The "Record" used by each student consists of seven mimeographed pages. In addition to space for various items of biographical information, provisions are made for a student to indicate and/or check many items or areas such as (a) reasons for taking the reading course, (b) referral sources, (c) opinions related to areas of reading weaknesses, (d) class and employment (if any) schedules, (e) self-evaluation scales for improvement and effort, (f) diagnosed or suspected visual difficulties, (g) self-ranking of reading status, (h) occasions

for using guidance services, (i) outside book and magazine reading, (j) detailed schedule for reading improvement practice, (k) easy and difficult subjects, and the like.) This record, which the student files in a folder together with other materials he uses throughout the quarter, compiles detailed essential background data for the teacher and seems to stimulate the student's pride of initiative, serving him as a continuing means to evaluate both his aims in the courses and the materials he chooses to pursue these aims.

Now, how does our student choose his materials? We'd like you to meet a time-saver we have developed as a key to unlock our Reading Laboratory. It, "Your Index to the Auburn Reading Laboratory", goes into the student's folder for his daily use. We hope you will read carefully the copies which have been distributed to you. We just can't overemphasize the usefulness of this Index as an aid in guiding us and our students. It acts as an incentive to select books for various purposes. It helps the student to realize how many possible aims he might set in this huge area of reading. It emphasizes the notion of flexibility of rate. It lists considerable help in the problem of concentration — one of our most frequent problems. It helps create an awareness of various possible approaches to vocabulary. It encourages use of dictionaries and texts in a variety of college subjects. Above all, it is a constant, unreprimating guide, a true key which may unlock many doors in our students' hearts and minds.*

**Editors' note:* The "Your Index to the Auburn Reading Laboratory", as used in the "Revised Winter, 1961" version in the Auburn Reading program, consists of 31 pages of mimeographed, single-spaced material. For each of a large number of specific skill and/or information areas, an extensive number of sources for pertinent practice material and exercises has been listed, with the specific applicable chapter(s) and/or pages in each source having been given. Because of the aid the Yearbook Editors feel this material might be to many persons connected with college and other adult reading improvement programs, a modified version of the Auburn "Index" has been prepared and is presented on the pages immediately following this paper. In the original version, the materials referred to under each specific area are listed by author(s) and title, and the specific pertinent chapter(s) and/or pages in each set of materials are indicated. The form of the "Index" presented in this Yearbook has been modified by referring to each specific source by the corresponding number which that particular item has in the "Bibliography of Auburn Reading Laboratory" presented in this Yearbook immediately after the "Index". The "Bibliography of Auburn Reading Laboratory" was prepared by Mrs. Edwards and her staff at the request of the Editors. It is a list of complete references (including publishers, copyright dates, and current prices) for all of the materials (over 200 separate items) referred to in the Auburn "Index". The time and effort involved in the preparation of this extensive "Bibliography" will truly be appreciated by anyone who has ever undertaken even a small part of a task of this type.

How do we know these tools work? We have records of gains measured sometimes by the *Cooperative English Test*, C2, sometimes by the *Diagnostic Reading Test*, Survey Section, and sometimes by the *Iowa Silent Reading Tests*, Advanced. Representative studies completed on our total enrolments in Winter, 1958, with the Iowa test showed that percentiles corresponding to the total median standard scores gained, on the average, from 17 on the pre-test to 50 on the mid-term test to 67 on the post-test. And in the spring, 1958, these percentiles increased on the average from 23 to 48 to 76. (8)

We are far from satisfied. We plan research into (1) construction and validation of tests and other instruments, (2) effect of various therapies in teaching students of certain personality types, and (3) evaluation at the end of instruction and on follow-up in respect to achievement in language skills, general academic achievement, changes in personality and perception, changes in supplementary reading for other classes, and changes in leisure reading. We would be pleased to cooperate also with any of you undertaking research in these areas.

But perhaps the final evaluators in a student-centered program are not teachers, not statistical techniques, but students themselves. Occasionally we feel a tingle of pride as we listen to a student exclaim eagerly that he's read a full book for fun for the first time. We'd like to share with you excerpts from a paper written by one young lady for a graduate assistant in the spring, 1959, because we feel she's understood what reading really is:

"Big things come in little packages." This sentence seems to summarize Reading Improvement. Although it is only a three-hour course, and meets only four days a week, it offers many opportunities of aid and improvement in nearly all of the courses that a person must take during his four-years schooling.

This, also, is a course which best represents "educating." Its goals are to be attained only through the wholehearted efforts of the person himself — not by a teacher, or by memorizing, or by cramming—just by the person seeking the help.

... I hope that, in the future, I will be able to spend an hour or two every other week in the reading laboratory trying to improve my speed. I am planning on majoring in English which will, naturally, require very much reading. I will need to read better and faster as the years go by. This is the goal for which I shall strive. (5)

References

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5. Marshall, Sallie, "Reading Improvement," Unpublished paper, Auburn University, Auburn, Alabama, 1960.
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9. Stout, Rex, *Plot It Yourself*, Bantam Books, New York, 1959.
10. Strang, Ruth, "Perception as part of the Total Reading Process," *Education*, 75:596-99, May, 1955.
11. Woodworth, Robert S., "Reading", in *Experimental Psychology*, Henry Holt and Company, New York, 1938, pp. 713-46.

Your Index to The Auburn Reading Laboratory *

Revised Winter, 1961

To you, the student: We have prepared this list to help you locate in the Reading Laboratory the particular materials you can use to improve your reading in the areas where you are weakest. Draw upon these materials throughout the term with the guidance of your instructor. Some selections will be ideas on "how to"; others will be practice in the "doing." Choose well, and keep track of what you are choosing in your "Reading Improvement Record."

You will find keys in the file for the books of the following authors:

8	55	73	149
10	56	74	157
16	61	75	163
37	62	79	171
38	70	96	182
40	72	101	184
		106	199

To Learn What "Reading" Is All About

2 (Ch. 1-6, 14)	106 ("You Can Improve"; pp. 3-6; "Survey Tests")
7 (Ch. 3, 6, 8)	128 (pp. 105-28)
8 (Ch. 1, 2, 3, 10)	129 (Introduction; Ch. 10)
21 (Ch. 1-3)	134 (Ch. 6)
23 (Ch. 1, 2, 4, 6, 7; pp. 91-95)	137 (Ch. 1-5, 10)
24 (Ch. 2)	140 (pp. 20-22; 55)
26 (pp. 1-17)	142 (Ch. 1)
33 (pp. 9-11)	145
39 (Ch. 1, 3, 4, 5)	150 (Introduction; Ch. 1)
43 (Ch. 1, 4; pp. 231-38)	152 (Ch. 1; "Reading Methods and Habits Test" in Appendix)
51 (pp. 4-10)	153 (Ch. 1, 2)
52 (pp. 106-110; Sect. 1)	156 (Ch. 1, 7, 9, 10)
55 (pp. 3-6, 13-14, 43-45, 69-71, 89-91, 109-110, 119-120, 139-140)	157 (Ch. 1, 2)
66 (Ch. 1, 2; pp. 343-347)	159 (Introduction)
76 (pp. 2-14)	162 (pp. 9-18)
78	167 (pp. 36-47)
80 (Ch. 2, 3)	169 ("About This Book"; Ch. 1-4, 17)
81 (Ch. 1, 2)	181 (Ch. 4)
82 (Ch. 1, 2)	182 ("To the Student")
83 (Ch. 1)	185 (Ch. 1-4)
100 (pp. 1-6)	186 (Ch. 1)
101 (Ch. 1, 2, 3)	187 (pp. 9-15)
102 (pp. 3-12)	189
	197b

*Prepared by the Staff of the Reading Improvement Program, Department of Psychology, Auburn University, Auburn, Alabama. (See Editors' note, p. 14.)

To Learn What "Language" Is All About

- | | |
|--|----------------------------------|
| 5 (All) | 89 (Part 5) |
| 18 (All) | 110 (All) |
| 47 (All) | 116 |
| 48, 49 (Third Day; Sixteenth Day;
Twenty-Ninth Day) | 117 (All) |
| 56 (All) | 118 (All) |
| 57 (Ch. 15, 16) | 119 (All) |
| 63 (All) | 125 (All) |
| 66 (pp. 199-200) | 129 (Ch. 11) |
| 72 (Ch. 7) | 168 (Ch. 2, 3, 8, 9, 10, 13, 14) |
| 74 ("A Postscript on the Ancestry
of English") | 176 (pp. xv-xxxiv) |
| 76 (Ch. 12, 17) | 179 (All) |
| 76 (All, esp. Ch. 13) | 180 (All) |

Study Skills

1. How to get interested in what I'm reading

- | | |
|---|------------------------------|
| 7 (Ch. 1, 2, 10) | 97 (Ch. 2, 8) |
| 13 (pp. 13-16, 23-25, 97-98, 111-114) | 123 (Introduction; Ch. 1, 4) |
| 14 (pp. 7-9) | 128 (pp. 71-79) |
| 16 ("Setting Your Course" and "The
Role of Education") | 129 (Ch. 6) |
| 20 (pp. 41-43) | 145 |
| 28 (Ch. X) | 152 (Ch. 17) |
| 30 (pp. 43-57) | 155 (All) |
| 31 (pp. 81-95, 101-236) | 156 (Ch. 19) |
| 39 (Ch. 2, 7) | 167 (Ch. 1, 2) |
| 43 (Ch. 1) | 129 (Ch. 4) |
| 52 (pp. 22-23) | 181 (Ch. 2) |
| 54 (All) | 186 (Ch. 18) |
| 55 (pp. 41-43) | 189d. |
| 76 (Ch. 7, 10, 15) | 189e. |
| 78 | |

2. How to concentrate

- | | |
|-----------------------------|-----------------------------|
| 8 (Ch. 7, 16) | 121 |
| 20 (Assignments 2-5, 15-18) | 123 (Ch. 2) |
| 21 (Ch. 6) | 129 (Ch. 5) |
| 22 (Assignment 9) | 134 (Ch. 7) |
| 23 (pp. 84-85) | 150 (pp. 147-150) |
| 28 (Ch. I, II) | 157 (Ch. 9, 12) |
| 30 (Ch. 1) | 162 (pp. 42-46) |
| 31 (Ch. 3) | 167 (Ch. 3, 4) |
| 33 (pp. 27-29) | 169 (Ch. 11, 13) |
| 35 (pp. 37-40, 45-47) | 187 (pp. 1-9, 19-21, 27-32) |
| 37 (Ch. 2) | 189f. |
| 39 (Ch. 4, 5, 8) | 189i. |
| 43 (Ch. 5) | 189u. |
| 55 (pp. 23-25) | 197c. |
| 66 (pp. 20-21, 253-256) | |
| 75 (pp. 143-144, 179-180) | |
| 76 (Ch. 4, 5, 16) | |
| 81 (pp. 52-59, Ch. 4) | |
| 83 (Ch. 7) | |
| 97 (Ch. 3) | |
| 101 (Ch. 4) | |
| 107 (Ch. 2, 3) | |

3. How to take or make notes

- | | |
|-----------------------------|-----------------------------------|
| 7 (Ch. 7, 12) | 76 (Ch. 6) |
| 8 (Ch. 13) | 81 (pp. 105-111) |
| 20 (pp. 21-25) | 107 (Ch. 5) |
| 23 (pp. 71-74) | 121 |
| 28 (Ch. VI) | 123 (Ch. 3, 6) |
| 30 (pp. 10-12, 57-60) | 129 (pp. 28-41, 106-108) |
| 31 (pp. 48-50, 95-98) | 134 (Ch. 9) |
| 35 (pp. 40-44) | 135 (pp. 2, 6) |
| 39 (pp. 124-133, 179-186) | 187 (pp. 21-23) |
| 43 (Ch. 7) | 204d. ("Listening Skill Builders" |
| 61 (Exercises on "Outline") | and "Listening-Notetaking Skill |
| 75 (pp. 245-248) | Builders") |

4. How to remember what I've read

- | | |
|------------------------------------|----------------------------------|
| 8 (Ch. 9) | 81 (Ch. 6) |
| 21 (Ch. 4) | 83 ("Tests of Your Retention and |
| 23 (pp. 84-86) | Recall") |
| 26 (pp. 170-242) | 97 (Ch. 10) |
| 28 (Ch. VII) | 107 (Ch. 3) |
| 33 (pp. 215-217) | 121 ("Remembering") |
| 35 (pp. 36-37) | 123 (pp. 45-53) |
| 37 (Ch. 11, 12) | 129 (pp. 49-53) |
| 43 (Ch. 5) | 150 (Ch. 8) |
| 51 ("Paragraph Reading, "Exercises | 157 (Ch. 13) |
| 7, 11) | 162 (pp. 46-48) |
| 55 (pp. 51-52) | 181 (pp. 70-78) |
| 80 (Ch. 11) | 187 (pp. 17-19) |

5. How to prepare for and take a test

- | | |
|--------------------|----------------------|
| 7 (Ch. 13, 14) | 121 ("Examinations") |
| 20 (pp. 37-38) | 123 (Ch. 5) |
| 22 (Assignment 21) | 128 (pp. 43-54) |
| 28 (Ch. VIII) | 129 (Ch. 4) |
| 30 (pp. 19-22) | 134 (Ch. 10) |
| 31 (pp. 57-60) | 137 (Appendix 1) |
| 35 (pp. 48-53) | 157 (Ch. 17) |
| 39 (Ch. 9) | 167 (pp. 55-67) |
| 43 (Ch. 6) | 186 (Ch. 21) |
| 55 (pp. 51-52) | 187 (pp. 23-27) |
| 76 (Ch. 11) | 189k. |
| 81 (Ch. 7) | 197a. |
| 107 (Ch. 6) | |

6. How to use the library

- | | |
|-------------------------|----------------------------|
| 3 (All) | 76 (Ch. 13, 14) |
| 4 (All) | 81 (pp. 192-194) |
| 8 (Ch. 15) | 107 (Ch. 7) |
| 19 (All) | 119 (Ch. 1, 13) |
| 22 (Assignments 18, 19) | 123 (pp. 62-65) |
| 28 (Ch. IX) | 128 (pp. 81-92) |
| 30 (pp. 22-26; Ch. 3) | 129 (pp. 117-126) |
| 31 (pp. 60-64; Ch. 5) | 164 |
| 35 (pp. 53-60) | 181 (Appendix A, "The Term |
| 37 (Ch. 14) | Paper") |
| 43 (Ch. 9) | 189 (Ch. 15) |
| 52 (pp. 94-97, 126-127) | 198 |

7. Location of information (to read indexes, parts of a book, maps, tables, charts, formulas)

- | | |
|--|---|
| 4 (pp. 6-11, 27-37) | 108 (All) |
| 16 ("Building Background and Extending Interests") | 119 (Esp. Spelling, Writing Paragraphs, Kinds and Qualities of Paragraphs; Ch. 9, 10, 11, 12) |
| 20 (pp. 35-36) | 122 (Ch. 6) |
| 22 (Assignments 4, 16, 17) | 123 (pp. 56-60) |
| 28 (pp. 21-23) | 128 (pp. 40-41, 213, 222) |
| 30 (pp. 14-17) | 129 (pp. 44-48, 225-235) |
| 31 (pp. 52-55) | 130 (All) |
| 43 (pp. 200-205) | 131 (All) |
| 51 ("Reading Non-Prose Materials"; pp. 7-8) | 132 (All) |
| 64 (pp. 21-23) | 135 (pp. 131-135, 197-201) |
| 70 (Ch. 9) | 153 (Ch. 8) |
| 75 (pp. 199-204, 223-225; "Pre-Reading") | 155 (pp. 150-153) |
| 80 (Ch. 15) | 157 (Ch. 10) |
| 81 (Ch. 5) | 162 (p. 93) |
| 105 (pp. 664-667) | 163 |
| 106 (pp. 165-171) | 169 (Ch. 9) |
| 107 (Ch. 10) | 172 (All, esp. ch. 27) |
| | 185 (Ch. 16) |
| | 197d. |

Comprehension

1. To develop flexibility of rate — according to my purpose in reading, to the difficulty of the material, and to length of material

- | | |
|--|--|
| 2 (Ch. 7, 8) | 97 (Ch. 4) |
| 8 (Baker, Ch. 5, 8, 17) | 102 (pp. 9-12) |
| 13 (pp. 3-17, 29-50, 101-116) | 107 (pp. 35-49) |
| 14 (pp. 33-35) | 109 (pp. x-xiii, xvi-xvii) |
| 15 (pp. 192, 194, 196) | 134 (Ch. 3) |
| 21 (Ch. 7) | 135 ("Directions," pp. 4-6) |
| 23 (pp. 34-37, 80-82, 201-244) | 137 (Ch. 7, 8) |
| 24 (Ch. 11) | 139 (All) |
| 33 (pp. 55-58, 185-188) | 140 (All) |
| 39 (pp. 119-123) | 141 (All) |
| 40 (All) | 142 (Ch. 2) |
| 43 (Ch. 4) | 150 (Ch. 9) |
| 51 ("Reading a Short Article") | 152 (Ch. 2) |
| 52 (All "Tests of Rate and Comprehension") | 153 (Ch. 2-7, 10) |
| 55 (pp. 33-34) | 156 (Ch. 4-6) |
| 66 (pp. 15-18) | 163 |
| 73 ("Understanding the Essay") | 169 (pp. 70-71, 91-94, 114-118, 138-140) |
| 76 (Ch. 7; pp. 89-93, 97) | 171 (pp. 153-159) |
| 80 (Ch. 8, 13) | 185 (Ch. 6, 7, 17) |
| 81 (pp. 39-52) | 187 (pp. 9-10) |
| 83 (Ch. 10) | 197b. |

2. To correct word-by-word reading or "going-back" (regressions) — to read for ideas

- | | |
|---|--|
| 8 (Ch. 4, 8) | 55 (pp. 61-62) |
| 14 (pp. 187-188) | 66 (pp. 24-26) |
| 23 (pp. 219-222) | 75 (pp. 103-108; "Eye Movements in Reading," "Eye Span," "Key Word Reading," "Phrase Recognition") |
| 51 ("Speed in Getting the Point," "Phrase Reading") | |
| 52 ("Speed of Interpretation") | |

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|--------------------------------|--|
| 80 (Ch. 5, 7) | 153 (Ch. 5) |
| 81 (Ch. 8) | 156 (Ch. 2, 3) |
| 82 (Ch. 3, 4, 6) | 157 (Ch. 8) |
| 83 (Ch. 3, 4) | 159 (pp. 7-57) |
| 99 (pp. 5-8, 19-24, 28-99) | 169 (Ch. 3; pp. 129-133; "Eye Span Exercises") |
| 101 (Ch. 4; Series III, IV, V) | 171 (pp. 118-128) |
| 107 (pp. 40-48) | 185 (Ch. 5) |
| 120 ("To the student") | 186 (Ch. 2-6) |
| 122 (Ch. 1) | 196 |
| 137 (pp. 50-65; ch. 6) | 199 |
| 142 (Ch. 2) | 202 |
| 150 (Ch. 2) | |

3. To improve study-type (thorough, intensive) reading

- | | |
|---|-------------------------|
| 2 (Ch. 7) | 96 (All) |
| 7 (Ch. 9, 11) | 97 (Ch. 5-8) |
| 13 (Part III) | 101 (Ch. 4; Series VII) |
| 14, 15 (All) | 102 (All) |
| 21 (Ch. 4) | 107 (Ch. 3) |
| 24 (Ch. 6) | 109 (pp. xvi-xvii) |
| 28 (Ch. III) | 120 (All) |
| 30 (Ch. 1; pp. 43-60) | 123 (Ch. 3) |
| 31 (Ch. 3; pp. 81-98) | 128 (pp. 13-41, 93-101) |
| 33 (All) | 129 (Ch. 2, 3, 7) |
| 35 (25-36) | 134 (Ch. 3) |
| 37 (Ch. 8, 9, 10) | 139 (pp. 60-65) |
| 39 (Ch. 4, 5) | 140 ("Ninth Week") |
| 43 (Ch. 2) | 149 (All) |
| 52 ("Tests of Rate and Comprehension"; pp. 76-78) | 150 (Ch. 5) |
| 55 ("Thorough Reading") | 152 (Ch. 3, 4) |
| 60 (All) | 157 (Ch. 2, 11) |
| 61 (All) | 159 (Ch. 7) |
| 73 ("Understanding the Essay") | 162 (pp. 24-26) |
| 76 (Ch. 9) | 163 |
| 77 (pp. 141-156) | 169 (Ch. 14) |
| 81 (Ch. 4) | 181 (Ch. 6) |
| 83 (Ch. 7) | 185 (Ch. 13) |
| | 187 (pp. 15-17) |

4. Directed reading (reading to answer questions)

- | | |
|--|---|
| 20 (pp. 32-34) | 75 (pp. 157-161; "Skimming to answer a question," "Question Technique") |
| 21 (Ch. 4) | 77 (Ch. 9) |
| 25 ("Read to find the answer to a Question") | 81 ("Some of the Questions (this) Chapter Will Answer for You" in each chapter) |
| 26 (pp. 65-169) | 128 (Survey Q3R) |
| 33 (pp. 117-119) | 129 (Ch. 2, 3) |
| 51 ("Speed of Interpretation") | 134 (Ch. 2) |

5. Poetry Comprehension

- | | |
|--------------------------|---------------------|
| 5 (pp. 221-229) | 112 |
| 8 (Ch. 22) | 115 (pp. 41-45) |
| 22 (Assignment 13) | 134 (pp. 173-179) |
| 24 (pp. 251-263) | 135 (pp. 13, 72-76) |
| 29 (pp. 5-6) | 137 (pp. 235-236) |
| 65 (pp. 20-29) | 155 (pp. 42-44) |
| 73 (pp. 207-209) | 166 (All) |
| 77 (pp. 131-141; Ch. 12) | 169 (pp. 164-165) |
| 100 (Unit 11) | 172 (pp. 139-148) |

6. Sentence Meaning

- | | |
|-------------------------|------------------------|
| 5 (pp. 177-211) | 75 (pp. 127-129) |
| 8 (Ch. 11) | 80 (pp. 77-90) |
| 23 (pp. 66-67) | 101 (pp. 105-116) |
| 24 (Ch. 4) | 106 (pp. 61-69) |
| 37 (Ch. 5) | 119 (Ch. 9, 10) |
| 51 ("Sentence Reading") | 159 (pp. 61-68) |
| 56 (pp. 91-114) | 171 (pp. 66-67, 79-83) |

7. Paragraph Comprehension

a. To develop ability to grasp main ideas as against details

- | | |
|--|---|
| 2 (Ch. 9, 11) | 105 (Ch. 12, 14) |
| 13 (pp. 50-60, 74-75) | 106 (pp. 7-16) |
| 15 (pp. 160, 162, 164, 166, 168, 230) | 107 (pp. 35-40) |
| 16 ("Reading for Facts" sections) | 109 (pp. xvi-xvii) |
| 21 (Ch. 4) | 122 (Ch. 3, 4) |
| 24 (Ch. 3) | 128 (Survey Q 3R) |
| 26 (pp. 19-31) | 129 (Ch. 2, 3) |
| 37 (Ch. 6, 7) | 134 (Ch. 2, 4, 7) |
| 39 (pp. 119-23) | 135 ("Directions for Type I and Type II Exercises") |
| 51 (pp. 46-49, 60-62, 114-118, 176-177, 216-217) | 137 (Ch. 8) |
| 52 ("Getting the Main Point," "The Main Idea," "Reading for Details") | 140 (Exercises 2, 3) |
| 55 ("Main Ideas and Details") | 142 (Ch. 4, parts I, II) |
| 60 ("Choosing the Best Title," "Getting the Main Idea," "Getting the Facts") | 150 (Ch. 6, 7) |
| 61 ("Main Idea," "Facts" exercises) | 152 (Ch. 5, 6) |
| 66 ("How Well Did You Read?" in each selection; Ch. 5, 7) | 157 (Ch. 5) |
| 70 (Ch. 2, 3) | 159 (pp. 77-97) |
| 75 ("Summarizing") | 181 (pp. 42-44) |
| 76 (pp. 83-84) | 182 ("Thorough Reading," "Thorough Reading: Summarizing") |
| 77 (Ch. 7, 10) | 184 ("Central Idea" sections) |
| 80 (Ch. 4, 5, 6) | 185 (Ch. 9, 10) |
| 82 (Ch. 5) | 186 (Ch. 9) |
| 83 (Ch. 2, 5, 7, 9) | 204d. |

b. To find the organizational pattern in the material

- | | |
|---|---|
| 5 (pp. 212-221) | 76 (p. 84) |
| 7 (Ch. 4) | 97 (Ch. 11) |
| 8 (Ch. 14) | 105 (Ch. 17) |
| 12 (pp. 5-47) | 106 (pp. 26-39, 93-103, 130-137, 155-163) |
| 13 (pp. 75-90) | 107 (pp. 38-39) |
| 14 (pp. 176, 178, 184, 236, 244, 246) | 110 (Ch. 29) |
| 16 ("Text Analysis" sections) | 119 (Ch. 7, 8) |
| 21 (Ch. 4, 8) | 122 (Ch. 5) |
| 22 (Assignment 6) | 140 (Ex. 4) |
| 23 (pp. 55-62) | 142 (Ch. 4, parts III, IV) |
| 24 (pp. 32-64) | 150 (Ch. 4, 9) |
| 33 (pp. 145-148) | 153 (Ch. 3) |
| 51 (pp. 77-80, 96-100) | 156 (Ch. 11) |
| 52 (pp. 120-121, 143-144, 158-159) | 157 (Ch. 4) |
| 55 ("Organizational Pattern") | 159 (pp. 98-109) |
| 60 ("Making an Outline") | 169 (Ch. 7, 8; pp. 112, 113) |
| 61 ("Reference Words and Phrases," "Organization," "Outline" exercises) | 181 (pp. 44-51; Ch. 5) |
| 66 (pp. 21-23) | 184 ("Analysis" sections) |
| 70 (Ch. 4, 5) | 186 (Ch. 13) |
| 75 (pp. 273-275) | 187 (pp. 12-14) |

8. *Selection of key words — To select key words (basic terms) in material*

- | | |
|-------------------------------|-------------------|
| 2 (Ch. 10) | 122 (pp. 14-19) |
| 13 (pp. 69-73) | 137 (pp. 302-317) |
| 23 (pp. 59, 64-67) | 150 (pp. 252-260) |
| 52 ("Speed of Comprehension") | 162 (pp. 22, 65) |
| 106 (p. 164) | 163 |

9. *To read to solve a problem*

- | | |
|---|---|
| 21 (Ch. 9) | 81 (Ch. 11) |
| 22 (Assignment 20) | 97 (Ch. 11) |
| 23 (p. 56) | 109 ("Use Reading Method to Accomplish Your Purpose") |
| 25 ("Read to See How a Problem was Solved") | 149 (Unit 7) |
| 26 (pp. 504-569) | 182 ("Associational Reading") |
| 28 (Ch. IV) | 189j. |
| 55 ("Reading to Answer a Problem") | 189v. |
| 70 (Ch. 7) | |

10. *To improve skimming techniques*

- | | |
|---------------------------------------|--------------------------|
| 8 (Ch. 6) | 139 (pp. 73-78) |
| 15 (p. 198) | 140 ("Twelfth Week") |
| 22 (Assignment 5) | 142 (Ch. 2, 6) |
| 23 (pp. 78-80) | 150 (Ch. 10) |
| 52 (pp. 130-136) | 152 (Ch. 7, 8) |
| 55 ("Skimming") | 153 (Ch. 4, 6) |
| 66 (Ch. 6) | 157 (Ch. 3) |
| 75 (pp. 61-64; "Skimming for a Fact") | 162 (pp. 19-24) |
| 77 (Ch. 3) | 163 |
| 80 (Ch. 9) | 169 (Ch. 9) |
| 83 (Ch. 8) | 171 (pp. 93-97, 106-110) |
| 134 (pp. 49-62) | 185 (Ch. 8) |
| 137 (Ch. 11) | 204a. |

11. *To develop ability to read critically (read between the lines, draw inferences)*

- | | |
|--|---|
| 5 (All) | 52 (pp. 149-151) |
| 8 (Ch. 8, 18, 19, 20) | 55 ("Critical Reading," "Tone and Intent") |
| 9 (All) | 60 ("Drawing Conclusions") |
| 12 (Part II) | 61 ("Understanding Point of View," "Inferences," "Conclusions" exercises) |
| 13 (pp. 63-65) | 63 (pp. 38-53) |
| 16 ("Thinking to a Purpose"; "Reading for Ideas" sections in Manual) | 66 ("Critical Reading" in each selection; pp. 229-231; Ch. 5) |
| 20 (pp. 26-27) | 73 (Ch. 15) |
| 21 (Ch. 10) | 76 (pp. 84-86) |
| 22 (Assignment 8) | 77 (Ch. 11) |
| 23 (pp. 1-46; "Selections for Analysis") | 80 (Ch. 12) |
| 24 (Ch. 1, 12) | 82 (Ch. 10) |
| 25 ("Read to Form a Conclusion" exercises) | 83 (Ch. 11) |
| 33 (pp. 165-167) | 97 (Ch. 12) |
| 36 (All, esp. Part 2) | 100 (Unit 6) |
| 37 (Ch. 13) | 106 (pp. 77-83, 115-124, 138-146) |
| 38 (All) | 109 (pp. xvi-xvii) |
| 46 (Ch. 19, 21) | 125 (All) |
| 51 ("Paragraph Reading," Ex. 6, 8, 10, 12) | 140 (Ex. 5) |

142 (Ch. 5; pp. 204-208)
 150 (Ch. 12)
 152 (Ch. 5, 6)
 153 (Ch. 7)
 155 (All)
 156 (Ch. 8)
 157 (Ch. 11)
 159 (Ch. 8)
 162 (Sect. E)
 163
 181 (Ch. 7)

182 ("Associational Reading: Drawing Inferences")
 184 ("Analysis" sections in Manual)
 185 (Ch. 11, 19)
 187 (pp. 14-15)
 204d.
 204e.

12. To learn to follow directions

70 (Ch. 6)
 76 (p. 84)
 80 (Ch. 10)

142 (p. 215)
 152 (All)
 159 (pp. 69-73)

Word Meaning (Vocabulary)

1. Introduction to methods of building vocabulary

5 (Ch. 1)
 7 (Ch. 5)
 8 (All)
 13 (pp. 18-22, 116-120; "Vocabulary Exercises")
 14 (Sect. 6)
 15 (pp. 178, 180, 218, 252; Sect. 6)
 16 ("Words and Their Ways"; Sections on "Word Comprehension" in Manual)
 17 (All)
 21 (Ch. 5)
 22 (Assignment 12)
 33 (pp. 81-85, 131-136)
 37 (Ch. 3)
 43 (Ch. 8)
 45 (All)
 46 (All)
 47 (All)
 48 (All)
 49 (All)
 51 ("Vocabulary Building")
 52 (pp. 11-13, 89-91, 208-210)
 53 (All)
 55 (pp. 79-81)
 57 (All)
 62 (All)
 66 (pp. 23-24)
 72 ("To the Student"; Ch. 1, 5, 7, 8)
 74 (Introduction)
 75 (pp. 39-42, 53-57)
 76 (pp. 93-95)
 80 (Ch. 26)
 81 (pp. 189-191)

82 (Ch. 8)
 83 (Ch. 6)
 84 (All)
 85 (All)
 97 (Ch. 9)
 99 (pp. 16-18)
 100 (pp. 8-10)
 103 (All)
 104 (All)
 106 (pp. 17-25)
 110 (Ch. 30)
 113 (All)
 116
 119 (Ch. 11, 12)
 123 (Ch. 7)
 124 (Ch. 1)
 129 (pp. 147-158)
 130 (All)
 131 (All)
 132 (All)
 134 (Ch. 5)
 137 (Ch. 9; Appendix II)
 142 (Ch. 3)
 151 (All, esp. ch. 1, 2)
 153 (Ch. 9)
 156 (Ch. 12)
 157 (Ch. 7)
 162 (Sect. C)
 168 (All)
 169 (Ch. 5, 6)
 171 (All)
 181 (Ch. 3)
 184 ("Vocabulary Extension")
 185 (Ch. 14, 15)
 187 (p. 14)
 207d. ("Vocabulary Building" sections)

2. To learn to pronounce words

- | | |
|---|------------------------------|
| 6 (P. xx.) | 117 (pp. 69-83) |
| 14 (pp. 230-232) | 119 (pp. 709-713) |
| 17 (pp. 8-14, 34) | 124 (Ch. 10) |
| 53 (pp. 3-13; "Pronunciation") | 138 (Ch. V) |
| 58 ("Phonetic Analysis" and "Structural Analysis" in index) | 142 (pp. 219-225) |
| 72 (Ch. 4) | 152 (pp. 136-145) |
| 85 (pp. 196-202, 225-227, 442-443) | 163 |
| 94 (Ch. 5) | 169 (pp. 52-53, 55) |
| 106 (pp. 50-60, 84-92, 147-154) | 186 (Ch. 8, 16; pp. 105-108) |
| | 204d. ("Learn About Words") |

3. To build my word power

a. Using context clues and understanding connotations

- | | |
|--|--|
| 6 (pp. xxiv-xxvi) | 97 (Ch. 9) |
| 9 (Ch. 4, 6) | 99 (All vocabulary exercises) |
| 17 (Part III; pp. 79-80) | 103 (Parts 1, 2, 3) |
| 24 (pp. 62-85) | 104 (Parts 1, 2, 3) |
| 37 (Ch. 3) | 105 (pp. 652-658; Ch. 18) |
| 41 (All) | 106 (pp. 40-49) |
| 43 (pp. 181-184) | 114 (Sect. 13, 14) |
| 46 (Ch. 13, 17, 18, 19) | 119 (pp. 322-362) |
| 48, 49 (Twentieth Day) | 124 (All, esp. ch. 7) |
| 52 (pp. 81, 165-166) | 125 (All) |
| 53 (All) | 136 (pp. ix-xiv) |
| 55 (pp. 223-224) | 137 (pp. 247-248) |
| 57 (Ch. 2, 3, 4, 6, 7, 8, 12) | 140 (pp. 45, 50, 54, 60, 66) |
| 61 ("Word Meanings," "Word Application," "Implications of Words," "Connotation") | 141 (All vocabulary exercises) |
| 62 (All) | 142 (pp. 197-201) |
| 63 (Ch. 4) | 150 ("Vocabulary Study" in each chapter) |
| 66 ("Vocabulary Development" in each selection) | 151 (Ch. 5, 7) |
| 72 (Ch. 6) | 152 (Ch. 9) |
| 73 ("Understanding the Words" in each essay) | 157 (Ch. 6) |
| 74 (Sect. 4, 6; pp. 97-98 in orange; Sect. 4; pp. 93-94 in gray) | 168 (Ch. 16, 19) |
| 79 (Ch. 9, 10) | 171 (pp. 34-57) |
| 89 (Parts 1, 5) | 177 (All) |
| | 182 ("Vocabulary Exercises") |

b. Analyzing words into prefixes, roots, and suffixes

- | | |
|--|--------------------------------|
| 6 (pp. xxi-xxii) | 82 (Ch. 8; pp. 261-297) |
| 17 (pp. 83-116) | 89 (Part 3) |
| 46 (Ch. 3, 7, 8, 9, 10, 15) | 94 (Ch. 2, 6, 7-11) |
| 47 (All, esp. ch. 22) | 103 (Appendix One) |
| 48, 49 (Twenty-first and twenty-eighth day) | 104 (pp. 195-256, 283-288) |
| 52 (pp. 26-30, 55-56, 81-82, 98, 113-115, 127-129, 167-168, 185) | 106 (pp. 70-76, 115-129) |
| 53 (pp. 225-230) | 107 (pp. 51-53) |
| 55 ("Vocabulary Development") | 114 (Sect. 2-12) |
| 57 (Ch. 9) | 124 (Ch. 3) |
| 66 (Ch. 8) | 137 (pp. 248-263) |
| 72 (Ch. 2) | 140 (pp. 23-24, 30, 33, 94-96) |
| 74 (Sect. 2, 3) | 143 (All) |
| 75 ("Vocabulary Extension") | 146 (All) |
| 77 (Ch. 4; pp. 55-63) | 151 (Ch. 4; Appendices A, D) |
| 79 (Ch. 3-8) | 152 (Ch. 10) |
| | 159 (pp. 179-183) |
| | 163 |

168 (Appendix B; Ch. 4-6)
 169 (pp. 47-51)
 181 (Appendix B)

182 ("Tables of Roots and Affixes"
 Appendix)
 186 (Ch. 11, 12, 14, 15, 17)

c. Learning synonyms and antonyms, homonyms, homographs

6 (pp. xxiii-xxiv)
 17 (pp. 52-74, 81-82)
 52 (pp. 97, 113, 148, 166, 184,
 197-199)
 53 ("Words Foten Confused")
 57 (Ch. 3, 4, 14)
 67 (All)
 74 (Sect. 5)
 79 (Ch. 11)
 89 (Part 4)
 95 (All)

99 (pp. 106-118)
 101 (Series II)
 114 (Sect. 15)
 124 (Ch. 4, 5, 6)
 131 (All)
 136 (All)
 151 (Ch. 6)
 163
 168 (Ch. 11, 12)
 174 (All)
 186 (Ch. 7; pp. 108-109)

d. Using a dictionary

1 (All)
 4 (pp. 41-43, 59-62)
 6 (All)
 14 (pp. 11-12, 119-121, 258, 260)
 15 (pp. 126-128, 254, 260, 262,
 264, 266)
 16 (Ch. 5; "Dictionary Comprehen-
 sion," "Word Study" in Manual)
 17 (Introduction; Parts I, III, V)
 22 (Assignment 11)
 41 (All)
 42 (All)
 46 (Ch. 23)
 50 (All)
 58 ("The Dictionary" in Index)
 59
 66 (pp. 179-180)
 67 (All)
 72 (Ch. 3)
 74 (Sect. 1)
 77 (Ch. 5)
 79 (Ch. 1)
 80 (Ch. 20)
 89 (Part 2)
 91 (All)
 93 (All)
 94 (All)
 106 (pp. 104-114)
 111 (All)

113 (All)
 114 (Ch. 1)
 119 (pp. 310-318)
 124 (Ch. 12)
 126 (All)
 129 (pp. 152-154)
 130 (All)
 131 (All)
 132 (All)
 133 (All)
 134 (Ch. 8)
 136 (All)
 137 (pp. 263-268)
 143 (All)
 144 (All)
 151 (Ch. 3)
 152 (Ch. 11)
 154 (All)
 160 (All)
 165 (All)
 168 (Ch. 20)
 169 (pp. 55-58, 60-63)
 173 (All)
 174 (All)
 175 (All)
 176 (All)
 177 (All)
 179 (All)
 180 (All)
 183 (All)

e. Improving spelling

14 (pp. 69-71)
 15 (p. 222)
 17 (pp. 15-20, 100)
 20 (pp. 28-30)
 44
 46 (Ch. 14)
 52 ("Speed of Perception")
 56 (pp. 115-122)

85 ("Brief Intermissions 11, 12, 13,
 14")
 94 (Ch. 4)
 98 (All)
 103 (Appendix Two)
 104 (Part 1)
 119 (Ch. 6)
 123 (pp. 69-72)
 124 (Ch. 11)

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|----------------------------|------------------|
| 128 (pp. 233-241) | 140 (pp. 68-84) |
| 129 (pp. 176-180, 246-253) | 169 (pp. 51-55) |
| 138 (All) | 181 (Appendix C) |

f. Learning basic vocabulary in special fields

- | | |
|--------------------------------|--|
| 1 (All) | 124 (Ch. 8, 9) |
| 29 | 126 (All) |
| 42 (All) | 133 (All) |
| 46 (Ch. 15) | 140 (pp. 37, 41) |
| 47 (Ch. 2, 6-10, 12-14, 16-18) | 144 (All) |
| 50 (All) | 149 (Exercises in "Topics and Selections") |
| 51 (pp. 204-209) | 151 (Ch. 8; Appendix B) |
| 74 (Sect. 6, 7) | 154 (All) |
| 77 (pp. 65-67) | 160 (All) |
| 79 (Ch. 12) | 165 (All) |
| 84 (Part IV) | 166 (Appendix A) |
| 85 (Ch. 4, 6, 10) | 168 (Appendix A, pp. 151-157) |
| 91 (All) | 180 (All) |
| 111 (All) | 183 (All) |
| 118 (pp. 167-212, 227-236) | |

g. Learning words from other languages

- | | |
|---------------------------|-----------------------------|
| 48, 49 (Twenty-fifth Day) | 118 (All, esp. pp. 402-413) |
| 52 (p. 161) | 119 (pp. 562-66) |
| 57 (Ch. 11) | 124 (Ch. 1) |
| 79 (Ch. 2) | 163 |
| 104 (pp. 267-282) | 168 (Ch. 7) |

h. Learning idioms (especially if I'm a student from another country)

- | | |
|-------------------|--------------------|
| 67 (All) | 119 (Ch. 2, 3, 4) |
| 93 (All) | 168 (Ch. 15, 2, 3) |
| 113 (All) | 177 (All) |
| 117 (pp. 59-66) | 179 (All) |
| 118 (pp. 143-153) | 180 (All) |

Rate

1. See COMPREHENSION, Sections 1, 2, and 10.

2. To increase rates of reading

- | | |
|---------------------------------------|--|
| 14 (All) | 122 (Ch. 2) |
| 15 (All) | 129 (pp. 141-145) |
| 23 (pp. 80-82; 201-244) | 127 (All) |
| 33 (All) | 134 (Ch. 1) |
| 37 (Ch. 1) | 139 (pp. 69-72) |
| 40 (All) | 140 ("Eleventh Week") |
| 51 (pp. 33-34; "Rapid Reading Tests") | 149 (Book I, pp. 29, 44-45, 59; Book II, pp. 16-17; Book III, pp. 16-17) |
| 66 (All) | 150 (Ch. 3) |
| 73 (All) | 152 (Ch. 7, 8) |
| 75 ("Reading Speed Exercise") | 158 (All) |
| 80 (Ch. 7) | 178 (All) |
| 82 (Ch. 3-7, 11) | 182 (All) |
| 83 (Ch. 1, 3, 4, 7-12) | 187 (pp. 10-11) |
| 99 (pp. 9-15) | 196 |
| 101 (Series VI, VII) | 204a. |
| 102 (All) | 207b. and c. |
| 107 (pp. 45-49) | 204d. |
| 109 (All) | |
| 120 (All) | |

Reading in Special Subjects (See also Word Meaning, 3f.)

1. To read in Social Sciences

- | | |
|---|---|
| 13 (pp. 13-16, 111-114) | 135 (pp. 77-135) |
| 16 ("Man in Society") | 139 (Selections 1, 3, 4, 18, 19, 21) |
| 23 (pp. 103-105, 109-115, 116-119, 128-131, 136-137, 138-139, 140-149, 156-161, 166-170, 173-178, 181-183, 188-191, 193-198, 199-200) | 140 (Selections 1, 2, 4, 7-14, 19, 27, 33, 36-38, 41, 43, 45, 48, 49, 51) |
| 75 (Ch. 18) | 149 (Second reading in each unit) |
| 100 (Unit 4) | 152 (Ch. 13) |
| 111 (All) | 160 (All) |
| 115 ("Social and Behavioral Sciences") | 172 (pp. 183-223, 229-241) |
| 120 (All) | 175 (All) |
| 133 (All) | 178 (pp. 164-243) |
| 134 (Ch. 4) | 182 (p. 363) |
| | 183 (All) |
| | 186 (Ch. 19) |

2. To read in History

- | | |
|-------------------------|---|
| 13 (pp. 11-13, 109-111) | 155 (pp. 145-149) |
| 23 (pp. 120-121) | 156 (Ch. 15) |
| 61 (pp. 44-45) | 157 (Ch. 1; pp. 115-116) |
| 75 (pp. 350-354) | 172 (pp. 194-208; "Historical and Regional Cultures") |
| 91 (All) | 178 (pp. 186-195) |
| 115 ("History") | 182 (p. 363) |
| 129 (pp. 213-224) | |

3. To read in Science

- | | |
|---|--|
| 13 (pp. 9-10, 106-108) | 100 (Unit 3) |
| 16 (Ch. 7, 8, 30-34) | 115 (pp. 56-60) |
| 22 (Assignment 15) | 134 (Ch. 4) |
| 23 (pp. 105-109, 115-116, 121-122, 124-128, 131-136, 137-138, 139-140, 149-156, 161-166, 170-173, 178-181, 183-188, 191-193, 198-199) | 135 (pp. 136-201) |
| 32 (All) | 139 (Selections 3, 20) |
| 34 (All) | 140 (Selections 3, 23, 26, 29, 39, 50) |
| 43 (pp. 200-205) | 149 (Third reading in each unit) |
| 52 (pp. 194-197) | 152 (Ch. 14) |
| 70 (All) | 155 (pp. 194-198) |
| 75 (Ch. 17) | 156 (Ch. 16) |
| 76 (Ch. 21) | 172 (Ch. 23, 25, 26) |
| 81 (Ch. 9) | 178 (pp. 117-163) |
| | 182 (p. 363) |
| | 186 (Ch. 20) |
| | 188 |

4. To read in Mathematics

- | | |
|-----------------|-----------------------------------|
| 16 (Ch. 6) | 134 (Ch. 4) |
| 23 (p. 119) | 148 |
| 28 (Ch. IV) | 149 (Fourth reading in each unit) |
| 55 (pp. 99-102) | 152 (Ch. 16) |
| 76 (Ch. 18) | 156 (Ch. 13) |
| 81 (Ch. 9) | 157 (p. 115) |
| 107 (Ch. 9) | 178 (pp. 85-116) |
| 115 (p. 59) | 182 (p. 363) |
| 129 (Ch. 12) | |

5. To read in Literature

- | | |
|-----------------------|----------------------------------|
| 2 (Ch. 15) | 115 (pp. 27-51) |
| 8 (Ch. 21) | 126 (All) |
| 11 (All) | 129 (pp. 41-44) |
| 13 (pp. 3-8, 101-107) | 134 (Ch. 4) |
| 16 (Ch. 36-38) | 135 (pp. 7-76) |
| 24 (Ch. 7-10) | 140 (Selections 22, 28) |
| 26 (pp. 157-163) | 149 (First reading in each unit) |
| 27 (All) | 152 (Ch. 15) |
| 52 (pp. 178-180) | 155 (pp. 33-49) |
| 61 (pp. 46-47) | 161 (All) |
| 64 (All) | 166 (All) |
| 69 (All) | 169 (Ch. 16) |
| 73 (All) | 170 (All) |
| 76 (Ch. 20) | 172 ("Literary Types") |
| 81 (Ch. 10) | 178 (All) |
| 88 (All) | 182 (p. 363) |
| 100 (Units 5, 7-11) | 185 (Ch. 12) |
| 112 | |

6. To read in Fine Arts

- | | |
|-------------|------------------|
| 76 (Ch. 35) | 115 (pp. 52-55) |
| 68 (All) | 172 (Ch. 15, 22) |
| | 178 (pp. 66-84) |

7. To read in Foreign Languages

- | | |
|-------------|-----------------|
| 76 (Ch. 19) | 128 (pp. 37-40) |
| 107 (Ch. 8) | 129 (Ch. 9) |
| 115 (p. 52) | 134 (Ch. 4) |
| 117 (All) | 156 (Ch. 14) |
| 118 (All) | 157 (Ch. 14) |

8. To read in Business

- | | |
|------------------|-------------------------------------|
| 75 (Ch. 20) | 139 (Selections 6, 7, 9, 14, 16) |
| 80 (Ch. 16-17) | 140 (Selections 30, 31, 39, 41, 42, |
| 81 (pp. 221-227) | 44, 47) |
| 87 (All) | 142 (pp. 193-196) |
| 111 (All) | 153 (All) |
| 115 (pp. 3-4) | 169 (Ch. 15) |
| | 172 (Ch. 20) |

9. To read in Law

- | | |
|---------------|--------------|
| 75 (Ch. 19) | 150 (ch. 15) |
| 115 (pp. 4-6) | |

10. To read Current Events (newspapers and magazines)

- | | |
|---------------------------|----------------------|
| 5 (Ch. 6) | 52 (pp. 162-164) |
| 15 (pp. 25-28) | 75 (Ch. 16) |
| 22 (Assignment 14) | 77 (Ch. 6) |
| 23 (pp. 212-213, 222-224) | 80 (Ch. 14) |
| 25 (pp. 253-327) | 102 (Exercises 2, 4) |
| 36 (All) | 150 (Ch. 11) |

Developing Broader Interests in Reading

2 (Ch. 16-17; "A List of the Great Books")	88 (All)
8 (Ch. 24)	99 (pp. 1-4)
11 (All)	106 (pp. 177-192)
12 (Part III)	107 (Ch. 10)
16 ("Building Background and Extending Interests" selections)	108 (All)
18 (All)	112
27 (All)	115 (All)
32 (All)	139 (pp. 66-68)
33 (pp. 243-245)	140 ("Tenth Week")
34 (All)	142 (Ch. 7)
35 (All, esp. ch. 2, 3)	144 (All)
36 (All)	145
38 (pp. 23-33)	147 (All)
51 (pp. 34-37)	152 (Ch. 17)
52 (pp. 22-23, 25-26, 180-181; Sect. 12)	155 (All)
57 (Ch. 5, 13)	156 (Ch. 18, 20)
61 (All)	157 (Ch. 15, 16)
63 (All)	161 (All)
65 (All, esp. Part I)	167 (All)
72 (Ch. 8)	169 (Ch. 16)
73 (All)	170 (All)
77 (Ch. 1)	172 (All)
78	184 ("Literary Exploration" and "Topics for Talks and Themes" sections)
80 (Ch. 18)	185 (Ch. 18, 20)
82 (Ch. 9)	188
83 (Ch. 11)	189 (All)
	204a.

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Department of Psychology, Auburn University

Winter, 1961

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*Prepared by the Staff of the Reading Improvement Program, Department of Psychology, Auburn University, Auburn, Alabama. All prices quoted are current list. (See Editors' note, p. 14)

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 - b. *Automatic Control*, 1955.
 - c. *Lives in Science*, 1957.
 - d. *The New Astronomy*, 1955.
 - e. *New Chemistry*, 1957.
 - f. *The Physics and Chemistry of Life*, 1955.
 - g. *The Planet Earth*, 1957.
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 - b. Building Your Philosophy of Life
 - c. Choosing Your Career
 - d. Discovering Your Real Interests
 - e. Enjoying Leisure Time
 - f. Exploring Your Personality
 - g. A Guide to Logical Thinking
 - h. How to Get the Job
 - i. How to Increase Your Self Confidence
 - j. How to Solve Your Problems
 - k. How to Take a Test
 - l. Improve Your Learning Ability
 - m. Looking Ahead to Marriage
 - n. Our World of Work
 - o. School Subjects and Jobs
 - p. Streamline Your Reading
 - q. Study Your Way Through School
 - r. Understanding Your Economy
 - s. Understanding the Other Sex
 - t. Understanding Yourself
 - u. What Are You Afraid Of?
 - v. What are Your Problems?
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 - x. Where Are Your Manners?
 - y. You and Your Mental Abilities
 - z. Your Personality and Your Job

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 - a. Reading Films — (17 reels for 16mm.) \$270.00
 - b. Instructor's Manual 2.00
 - c. Comprehension Checks on Films 1.00
 - d. Test A, B, C .50 each
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 - a. *Do Better on Your Examinations*
 - b. *How Effective is Your Reading?*
 - c. *How to Concentrate*
 - d. *How to Read a Book*
- 198. *Research in the Library*. From Queens College, Flushing 67, New York. \$150.00.

Equipment

- 199. *4 Renshaw Tachistoscopic Trainers*, plus four boxes of slides and instruction manual. Chicago 41: 3539 North Kenton Avenue.

200. Bell and Howell 16mm. projector borrowed from School of Education audio-visual service.
201. Bausch and Lomb *OrthoRater*. Rochester, New York: Bausch and Lomb Optical Company. Also manuals, scoring key, and accompanying record cards. Cards \$5.60 per package of 500.
202. *Keystone Tachistoscope*, plus manual, Keystone Lantern Slide series
 - a. Phrase-Sentence Series Level 1, Level 2, Level 3.
 - b. Visual Span
 - c. Sentence Reading Series
 - d. Phrase Reading Series
 - e. Dolch Basic Sight Vocabulary and Dolch Nouns
 - f. Dolch Phrase-Sentence Reading
 - g. Jumping Digits
203. 3 Wall Clocks
204. *Science Research Associates Materials*. Science Research Associates, Inc. 259 East Erie Street, Chicago 11, Illinois.
 - a. Simpson, Elizabeth A. *SRA Better Reading Books 1, 2, and 3*. 1950 and 1951. \$2.20 each.
 - b. 6 SRA Reading Accelerators, Model II (no longer available). Model IIB sells for \$85.00 Reading Calculators \$3.00 each.
 - c. 1 SRA Reading Accelerator, Model III, for easy portable use—\$45.00. Reading Calculator—\$3.00. (See Manuscript, p. 232)
 - d. 3 SRA Reading Laboratories
 - 2 Secondary Editions, IIIa \$46.50 each.
 - 1 College Preparatory Edition, IVa \$54.50.
 - e. 1 SRA Reading for Understanding \$29.50.

Tests

205. Cooperative English Test C2: Reading Comprehension. Four forms. \$3.75 per 25.
206. Diagnostic Reading Test, Survey Section, Upper Level. Forms A through G. 25 cents each.
207. Iowa Silent Reading Test, Advanced Edition, Forms Am, Bm, Cm, Dm. \$5.25 per 35.
Others as needed.

Contributions of Education to College and Adult Reading

Walter Hill

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Language being, at once, complex perceptual behavior, the primary medium of general and educational communication, and an educational objective of considerable social intensity, it is to be expected that the professional areas of English, Psychology, and Education would have expended mutual effort toward its analysis and improvement. The contributions of each of these professional groups have been so integrated that it is extremely difficult, if not impossible, to select from the tangled skein of evidence those threads of research evidence which belong solely to one professional body.

This interdependency is particularly true in the body of reading phenomena. In treating the contributions of Education to college and adult reading, it would appear to be overly academic, and rather beside the point, to place an emphasis upon a review of professional genealogy. Consequently, the objective of this third of the symposium is to present some selected elements of reading research and practice which are basic to the rationale of reading development at the elementary and high school levels.

It was a particular concern of the paper to present evidence which appears to be overlooked by the majority of individuals dealing with reading problems at the college and adult level. The selected data have been organized in terms of the educational interpretation of the reading process, the reader, the analysis of reading performance, the teaching of reading, and reading-learning practices.

The Reading Process

In terms of operational activity, the reading process is defined by most college and adult reading programs as a rather mono-skilled emphasis of mechanical proficiency centering about the development of rate, or more generously, about the development of rate and comprehension. This emphasis occurs in spite of a wealth of educational literature and research which describes

reading as a perceptually oriented complex of behaviors manifested by the effective integration of numerous skill performances.

Following the lead⁸ of Thorndike (16) and Davis (3), pre-college instruction in reading has emphasized the development of those numerous skill achievements which culminate in the flexible but accurate interpretation of individual words, the integrative weighting of word-idea elements, and the adjustment or validation of the resulting idea structure in terms of need and set. There would appear to be no limit to the number of possible learning situations which can contribute to these three basic elements of meaningful reading. In fact, the weight of empirical evidence indicates that the number of varied sub-skill learning experiences in which the reader can take part may be more important to the mastery of these three elements of reason-centered reading than repeated dosages of "identifying the main idea of this selection", etc. Educational literature on reading instruction, as well as the instructional materials themselves, contain a myriad of vocabulary and larger unit comprehension situations which can be drawn upon to broaden and strengthen the college or adult reader's interpretation of the printed page. Instructional experience at the precollege level indicates that there are many ways to clothe Thorndike's skeleton of reading comprehension and suggests that, for the individual reader, the learning experience defines the component functions of the process.

The educator has been forced to view the reading process as being somewhat broader than the interpretation of the paragraph or even the printed page. (4) In this sense, he has extended Thorndike's underlying assumption that reading involves an active search for meaning to include all behavior necessary to effective use of printed materials. In this development of functional reading ability, the educator has found it necessary to give special consideration to skill development in reading readiness, word perception, location of information, oral fluency, flexible rate, and study-learning skills. That this extended concept of the reading process has been less than successfully effected becomes readily apparent when we observe the inefficient reading-study practices of students scoring well up in the norms of college reading tests. The implication is that there is inadequate implementation rather than inaccurate conceptualization.

Nature of the Reader

If many of the individuals dealing with college and adult reading have been miserly in their assessment of the breadth and depth of the component skills of the reading process, they have been downright penurious in their consideration of the non-skills factors which contribute to successful reading performance. In this respect, such multifactor and interdisciplinary investigations as those of Monroe (10) and Robinson (11) have exerted limited influence upon research and instructional practice at the college and adult level.

Probably there has been some assumption that the selective aspects of college attendance and voluntary participation in adult reading programs rule out the presence of debilitating human anomalies in reading performance at the upper levels. The findings of a related body of literature would indicate that such an assumption does not square with evidence gained about the social, emotional, experiential, and intellectual make-up of the poor adult reader. (5) (6) In all probability, description of the precollege reader contains direct implications for college and adult reading. The following generalizations (obtained from Bibliographical Items 7, 13, and 17) should serve to illustrate this pertinency.

Limitations in intellectual ability, experiential background, physical well-being, motivational control, or early reading instruction probably will exert a negative influence upon learning to read.

The significance of these factors will vary from case to case, and, for the most part, individual predictions are hazardous without careful case study.

In general, the greater the deficiency in any one of these factors, the greater the probability of deficiency in reading.

A greater number of such anomalies usually is present in cases of severe deficiency in reading.

Compensatory factors such as strong drive, rich experience background, and good instruction produce a substantial range of reading achievement among individuals with the same anomaly.

Serious reading difficulty usually makes its appearance during the first year of reading instruction, and tends to become a permanent behavioral characteristic even though the disability may change in degree.

Severely retarded readers usually are limited in sight vocabulary and

are enmeshed in word skill difficulties. Prognosis is good for those who get beyond individual word difficulties.

Social and emotional adjustment problems frequently complicate reading deficiency, but whether the adjustment problem is cause, resultant, or concomitant varies in degree with each case. Consequently, the need and form of therapy, ataraxic prescription, or other direct provision for emotional adjustment should be determined by case study.

Abnormal personal development is not the only human factor significant to college and adult reading. It is not uncommon to find upper level reading teachers as well as content area instructors operating on the assumption that their students can profit from the single text or workbook assignment. It is a fact that an extensive normal range of reading achievement exists among age and grade peers at the pre-college level. This range is frequently three grade levels by second grade and as wide as ten grade levels at the beginning of high school. (15) Good instruction will produce greater increase in such ranges at successive grade levels. Evidently, the range of reading power among college freshmen is not greatly diminished by college entrance policies.

Even the better reader is capable of performing inadequately in certain settings. Occasions of oral non-fluency, inattentive verbalism, and comprehensive difficulty on material from an unfamiliar technical field are familiar to each of us. Furthermore, incorrect interpretation which escapes self-perception is not uncommon. McCaul (8) and McKillop (9) present evidence that emotional bias can produce inaccurate reading interpretation among adequate readers. However, factual comprehension is less subject to emotional set than inferential comprehension, and the degree of misinterpretation appears to be dependent upon the degree of threat involved.

The factors which produce good or poor reading behavior combine in many devious ways. Ranges of basic reading achievement exist at all levels and increase with each step on the educational ladder. Normally good readers can misinterpret content when lacking conceptual background, desire, or emotional objectivity. Surely, no one can assume, safely, personal factors which affect the reading skill of a college student or adult.

Analysis of Reading Performance

The prevailing popularity of the standardized reading achievement test as the major and sometimes total means of evaluation at

the college and adult level follows rather naturally from a narrow interpretation of the reading process and an indifference to the assessment of related human characteristics. At the precollege level, standardized achievement tests of reading are considered valuable in making normative comparisons of individuals and groups. Where diagnosis is concerned, these tests generally suffer from such limitations as narrow scope, confusion of norms by spurious influence of rate and vocabulary elements, and a tendency to overestimate reading power. (1)

Analysis of college and adult reading performance would profit from a closer inspection of analysis practices employed in many elementary schools and clinic settings. Several aspects of these practices are worthy of special note:

Underachievement is determined in terms of discrepancy between reading capacity and achievement rather than on an absolute or symptomological basis. Thus, estimates of capacity become a necessary aspect of reading analysis. It is doubtful that mental test scores provide more than a rough estimation of the reader's capacity to improve his performance, and should be supplemented by consideration of physical well-being, emotional control, and experiential background. Listening comprehension tests have been used effectively in classroom estimations of reading potential.

The analysis of specific reading performance is directed toward the development of a detailed profile of silent and oral reading performance, and will draw selectively from such tools as diagnostic reading batteries, informal reading scales and skills inventories, vocabulary lists, word skill tests, readiness and associative learning tests, measures of related language skills, inventories of study reading habits and attitudes, and observation of problem solving situations.

When needed, a thorough case investigation is made of the physical, experiential, social, emotional, and instructional background of the reader.

Instruction in Reading

Centuries of involvement with reading instruction and an accumulated literature of sixty years provide a wealth of evidence and experience which constitutes the main contribution of Education to college and reading instruction. Any present attempt to present these specific contributions would be wholly inadequate. Numerous textbooks, journal articles, and reviews of research are readily available to those so interested.

This section will be restricted to drawing some generalizations

about aspects of reading instruction which seem to be neglected rather frequently by those working with college and adult reading.

Readiness. Reading fluency, accuracy, and understanding are improved when the reader is prepared for a reading selection. Such readiness includes command of vocabulary and major concepts, desire to read, identification of purpose, and a plan of reading attack. It is necessary that the college and adult reader develop independent techniques of readiness for a reading task.

Level of Material. Reading skill is most efficaciously developed when the material used for instruction presents no more than one word recognition difficulty in fifteen running words and no less than 70% difficulty in factual comprehension. A necessary element of reading proficiency is extensive reading of materials at an independent level of difficulty; i.e., no more than one error in twenty running words, good speed, mastery of comprehension in terms of purpose, and freedom from limiting anxiety.

Development of Rate. Rate is meaningful only in terms of understanding. Improvement of fluency or flexible rate of compensation is dependent upon more than machine practice and daily rate tests. Among other things, development of fluency must consider the correction of basic word deficiencies; the use of independent level materials; the determination of reading purpose; the effective utilization of previewing, organizing, and retaining techniques; security and desire; and extensive reading of easy, interesting materials.

Word Power. Reading fluency and power is dependent upon word mastery. It cannot be assumed that college and adult readers are beyond such difficulties. New vocabulary is mastered when the meanings of the words are known, the number of new vocabulary is limited to the learner's rate, when attention is directed to form and meaning cues, and when meaningful reuse of the word is provided. Word power at the upper grade levels is highly dependent upon the reader's skill in independent word analysis through the versatile use of such cues as context, phonetic elements, structural elements, and typography. The goal of word skill is the facile association of the word form with its meaning.

Reading Devices. Education-based literature and research would imply that it is naive to assume that the use of any reading device, (films, film strips, tachistoscopes, flash devices, special exercises, individual rate machines, etc.), in itself, can provide adequately for the development of that complex of behaviors known as the reading process. Such reading devices may serve a valuable supplementary purpose in providing for variation in motivation and specific practice. The effects of such devices will vary from reader to reader and must be evaluated in an individual manner. That many books can be purchased for the price of such devices is of cogent consideration.

Broad Program in Reading. The effective reading program at the elementary school level considers definite provision for problem-centered reading and personal-development reading as well as for basic instruction and practice. These phases are most effective when geared to developments in the basic instructional program. It is doubtful whether brief periods of reading instruction and practice can exert much change in reading behavior unless close transfer to other reading situations is effected.

The eclectic nature of the program of reading instruction at the precollege level is readily apparent. Methods and materials from wide and various sources are used as they demonstrate utility. Although one or more basal reader series serve as the core of most elementary programs as a result of their superior presentation and control of learning experiences, experienced educators do not hesitate to modify and supplement the basal reader. Those critics who accuse modern reading theory of being monolatrous are ignorant of the facts. It is ironical that this very resistance to the "one best way" on the part of educational reading theorists has been the source of their greatest criticism, producing, at the same time, charges of unrealistic liberalism from phonics advocates and taunts of unimaginative conservatism from the teaching machine enthusiasts.

If veteran teachers of reading have been less than enthusiastic about the values of certain "new" approaches to the solution of reading problems, it may be that they remember that "new" approaches to reading instruction can be traced back at least as far as Matthew Prior's description of the seventeenth century practice of eating gingerbread letters to solve word problems. (Perhaps this might suggest a "new" sensory avenue of association for exploitation!)

Perhaps these teachers also recognize that the principles underlying most novel procedures, and often the procedures as well, have been utilized by classroom teachers for some decades and are not such revelations after all. Also, there is the question of practicality of some of these advocated techniques. The practice of the medical doctor and the psychologist telling teachers how to handle classroom instruction, from the safety of the examination room and animal laboratory, how to handle classroom instruction, has reached the proportions of a minor professional disease. It is interesting how complex a task becomes when one must put verbalization into action!

The college and adult reading area is particularly susceptible to the sweet smell of instructional solutions. Instructional innovations deserve careful consideration and controlled experimental utilization. However, whether it be described as conservatism or liberalism, the reluctance of educators to plunge reading instructional programs headlong into untried uniprocedural approaches must stand as a crucial contribution to college and adult reading.

Reading-Learning Practices

College and adult reading performance is of vital importance to all individuals who would use writing as a basic means of improving human behavior. Nevertheless, writers and instructors in the various academic disciplines appear to be particularly innocent about the facts of reading life. A good example of this naivete is the presumption that reading ability and the ability to learn through reading are identical phenomena. Disregarding interest, and most professors overestimate the interest potential of the reading materials in their pet fields, the adequate reader seems to have a difficult time in mastering course concepts through textbook assignments. The following generalizations, drawn from investigations of reading-learning practices of non-retarded readers (2, 12, 14), provide some explanation for this difficulty and suggest means by which the content instructor as well as the reading instructor can lessen the problems involved.

The immediate recall of factual selections of moderate length is less than 50% accurate. A month later, recall accuracy is halved again.

Rereading of material without change in purpose is largely an ineffective means of improving comprehension.

Comparative investigations of such study techniques as outlining, summarizing, and underlining have been confounded by the subjects' inability to use any of the techniques effectively without special instructional provision.

Special instruction and practice in a reading-study technique improves comprehension and retention when extended over several weeks.

Comprehension is significantly improved when the reader is provided with questions or guiding purposes.

Preliminary questions are superior to follow-up questions in improving comprehension of a selection.

Adult readers find no particular superiority among the use of such typographical aids as introductory outlines, summaries, headings, and underlining of main points, although possibly this would change if instruction in the use of such aids were given.

The more immediate the review of the reading selection, the more effective the retention of content.

Students with a personalized reading-study technique make comprehension scores superior to students with no particular technique.

Most students limit their textbook study to a single memoritor-type reading and take a chance on cramming before finals.

Lack of time is one of the most frequent responses given by college students to explain why they haven't developed better reading-study techniques.

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The Influence of Psychology on the Field of Reading

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In 1955 George Spache summarized the various psychological explanations of reading and reviewed the history of ideas regarding the nature of the reading act. (2) The period before 1910 was dominated by concepts concerning the physiology of reading. In the next twenty years, emphasis was on reading comprehension and on the development of achievement tests. The greatly increased pace of research development in the thirties and forties led to more interest in critical, flexible reading, and a strong trend toward more sophisticated statistical research, seeking information by means of complex designs such as factor analysis. There was also a return to the physiology of reading as evidenced by the emphasis on perceptual training and a revival of interest in mechanical devices. It is difficult to generalize about the last few years because of lack of historical perspective, but certain trends seem clear. One trend may be seen in the increase in awareness of the role of psychological reactions on the part of the reader. We have only recently seen the development of a number of reading clinics in which the personal and emotional problems of the reader are of prime concern. On the other hand, there seems to be a trend toward mass reading improvement programs at the college and adult level in which little or no individual diagnosis and treatment is being done.

With this brief and necessarily overgeneralized summary of the history of psychology and reading in mind, let us look at some of the major ways in which the field of psychology influenced the development of the field of reading, with special emphasis on those ideas which have had a marked effect on college and adult programs. We will consider the influence of the past, the psychological concepts which are available and not fully applied in the field of reading at the present, and finally, try to take a look at what the future might bring in the way of application of psychological concepts to the teaching of reading.

The Past

The field of psychology has developed hand in hand with the field of reading, and both have been influenced by each other. Some of the major concepts in psychology which have been important in the development of modern theory and the technique in reading follow:

1. *Individual Differences*

Probably the most important single idea that has come out of psychology in this century is the concept of individual differences. It is, of course, not a new idea in this century, since it was clearly recognized by Galton in the 1880's, but it has had its major impact in this century through the research and applications brought about primarily by psychologists. Major changes in our elementary school and secondary school curricula have been due to recognition of individual differences between children. At the college and adult level, much less has been done to adapt curriculum and methods to individual differences. We will return to this point later.

2. *Psychological Testing*

Since the strong emphasis on developing psychological tests which began during World War I, psychologists have been contributing steadily to the body of knowledge about testing in reading. Our current tests, while still inadequate by some standards, are still far superior in reliability and validity to reading tests of a few decades ago. Many of our tests, and the standards by which we judge them, have been produced by psychologists, and have been a major factor in making possible the present research in reading.

3. *Statistical Concepts and Experimental Methods*

The modern statistical and experimental methods in the field of reading are the product of methods developed in the field of psychology. The notion of systematic variation of conditions, use of control groups, dependent and independent variables, trained observers, repeated observations, and use of objective measurements are not new in the scientific world but it was the psychologist who took the lead in applying these key concepts to human behavior. The results of such application can be seen in the vast amount of knowledge we have about such subjects as the following:

- A. The role of vision and perception in reading
- B. Readability, and factors influencing it
- C. The physiology of reading
- D. The role of motivation and attitudes in reading
- E. Memory and forgetting
- F. Learning and habit formation

This brief list does not, of course, exhaust the world of ideas gleaned from psychological research, but it does give some indication of the variety of key concepts developed for us by psychologists.

The Present

One of the major problems faced in any area of human endeavor is the need to accelerate the rate at which new developments are put into everyday practice. Such is the case in reading. Some new concepts and developments are slow to be adopted, partly because of lack of communication and partly because of inertia or active resistance to them.

1. Individual Differences

We return again to this most important concept. We have done a great deal to fit the curriculum to the needs of the individual at the elementary level. We have done less at the secondary level, and practically nothing at the college level. The outstanding evidence of our concern with individual differences at the elementary level is to be found in our instruction in reading. But we also have ample evidence that the range of individual differences in reading ability is even greater among college students and adults than among elementary school children. In spite of this knowledge, however, we find that the typical teaching situation in college requires the same reading skills of all students. To suggest that we should have "reading groups" at the college level would probably bring down upon one the wrath of even the professors in college courses in "Individual Differences". Clearly, some means other than varying the difficulty level of materials needs to be found to allow for individual differences at the college level. One possibility is the procedure followed in a rather gross way by colleges in which high-achieving students can elect honors courses. This assures a qualitative variation in ability to read and understand academic material. Another kind of variation possible in the curriculum

is to allow for individual differences in a quantitative fashion. We may simply recognize the fact that the better reader will, in a given amount of study time, gain mastery of a larger quantity of knowledge.

2. Diagnostic and Remedial Techniques

Some of the concepts which have been rather completely developed in abnormal psychology and in psychotherapy suggest an approach to diagnosis and treatment of reading difficulties for which the technical tools exist but which have not been applied to reading problems. The concept of a diagnostic syndrome consisting of a specific pattern of symptoms leading to appropriate treatment with an accompanying taxonomy to identify the various "diseases" comes to us through medicine and has been adopted in clinical psychology. Statistical tools, such as cluster analysis, are available for the purpose of discovering such syndrome groups. Application of this concept of diagnosis would probably result in an improvement in our work with remedial and corrective reading cases because it would more closely relate diagnosis to treatment.

3. Use of Technological Advances

In this space age of rockets, missiles, and satellites, major technological advances are beginning to seem like everyday occurrences. In spite of this progress, relatively little of modern technology is being used in improving instruction in reading. For example, the powerful educational forces latent in the development of television have not been put to work to improve reading instruction except in a relatively few instances.

Another example of the potential use of technological advances in the field of reading is to be found in the recent development of computer programming and language translation machines. A combination of these two devices, using techniques, materials, and formulas already developed, could probably be used to assess the readability of materials with a speed and accuracy never before possible. Given the capabilities of the automatic translator it might even be possible for this combination of devices to re-write material at a desired level of difficulty.

The Future

It is useful in any kind of intellectual enterprise to keep a careful eye on the future. A look at the future gives us better

perspective with which to view the present and the past and sometimes give us the option of controlling the future rather than being controlled by it. Developments expected in the field of education in the next few years make it imperative that we control the direction of technological change. It will also be necessary for us to be concerned about the application of psychological concepts. In this section I propose to speculate some about innovations in the field of reading which may be brought about as a result of psychological developments.

1. *Testing*

Judging from the rapid development of measurement theory and technique in the field of psychology, one can be confident in predicting improvement in all aspects of measurement in reading. One possible advance in measurement in reading may lie in the general approach outlined by the writer elsewhere in this volume, in which we try to escape from the confines of observing the reader reading, into a measurement approach using, in addition, the wealth of information the reader can give us subjectively via a standardized self-descriptive instrument.

2. *Use of Concepts from Social Psychology*

Much of the work we do with people in college and adult reading improvement is done in groups. This may not seem to be a very profound observation until we consider the fact that we know very little at present about the application of concepts developed in the study of group behavior. It seems possible that once we understand the factors which create certain group atmospheres, we will be able to apply them to solving such problems as motivation, morale, and attrition. We may also find that certain kinds of group atmospheres, created scientifically, will produce maximum gains for certain kinds of people. These are only hints of the possible applications of social psychology.

3. *Medical Psychology*

Recent research showing relationships between body chemistry and certain kinds of behavior and behavior disorders (combined with the strong impressions which most of us have periodically received to the effect that there must be something organically or fundamentally wrong with the organism across the desk from us) leads me to suggest that we may be due for some major breakthroughs, for psychologists, working in conjunction with physi-

cians, are examining the inter-relationships between physical states of the human organism and the behavior of the organism. It is impossible at present, however, to predict even the general direction of such breakthroughs.

4. *Teaching Machines and Programmed Learning*

The rate at which the predicted industrial revolution in education seems to be coming about all around us leads me to discuss it in more detail than any of the points above. With our rapidly increasing population growth, the expansion of education to all segments of the population, and the learning facilities now at our command to meet the needs for education, we are forced to the conclusion that the efficiency with which we teach must be improved to avoid a serious breakdown in quality. Most of our past experience with any form of automation or mass production has been associated with a decrease in personalization and individualization. It seems probable that we are now faced with a situation in which automation is going to make possible individualization.

When I speak of teaching machines and programmed learning, I refer to a learning situation planned step by step with mastery of each step assured before the learner continues to the next step and in which the learner constantly receives immediate reinforcement of all correct responses in the learning situation. It is like an ideal classroom situation in which each child has a personal tutor who has developed the curriculum according to a carefully constructed plan and in which the tutor has constant knowledge of the responses of his learner and modifies his own teaching behavior to suit the needs of his learner.

Current evidence shows increasingly encouraging results concerning future benefits from the application of the concepts are implicit in programmed learning. What form it will take, and the extent to which the field of reading instruction will be influenced by it, will depend largely on our understanding of it.

In order to see what might happen as a result of total adoption of programmed learning, let us engage in some wild speculation concerning the nature of the fully automated college reading clinic of the future. (For some of these wild-eyed ideas I am indebted to Ramo (2).)

A. The student arrives at the door and enters. He sees a table

and a pile of cards something like an IBM mark sense or a document reader card. He fills out the card, making each response in a standardized way and puts it in the slot indicated on the small computer next to the pile of cards. This screening machine processes the card, determining whether or not the student is appropriate for future processing or if he has simply come in seeking information. The machine either gives him the information in some form or refers him to some other automated machine. If the student is appropriate for the clinic the machine registers him in, possibly collects his fees, and issues him an identification tab, which is very much like a charge-a-plate.

- B. The student is given instructions by a screening machine concerning the use of another machine, the diagnostic programmer. When he puts his tab in the second machine, it gives him a complete diagnostic battery of tests, including reading skills, motivation and attitude, capacity for improvement, and personality. (At this point the machine might refer him to the automated counseling service if he seems to have need of more than instruction.)
- C. He moves to the next machine which selects a tentative series of programmed learning materials for his use.
- D. The machine presents the early stages of the program, which has been specifically designed for the student, by means of paper and pencil materials, film, audio-tape, film strip, or some combination of these.
- E. The program is modified at all stages as a result of the constant evaluation of the student's improvement, carried out by the machine. It speeds up, slows down, introduces supplementary materials, skips unnecessary materials, and in general responds to the student in the same way a good tutor would. It might even respond to the level of motivation and other personality characteristics of the student.
- F. After the student has completed the series of programs designed for him the machine terminates him with a summary of his accomplishments.

To anyone who has read *Brave New World*, *Walden II* or 1984, it will be apparent from whence the above speculations came. They raise some very serious questions. For example,

"Where is the 'individual' in all of this?" The answer may be that this is a more individualized program of learning than we have ever seen, even in a situation with a personal tutor. The other serious question is "Where is the teacher?" We don't know the answer to this question yet, but any consideration of the importance of programmed learning makes it clear that the teacher will need new skills. He may be writing programs in collaboration with psychologists and engineers. On the other hand, the teacher's role may not change very much except for the possible removal from the teacher's responsibility of the most unpleasant aspects of current teaching—the presentation of routine factual material—freeing the teacher to do more creative things with the student.

We are going to have to face the fact that if the trend of the current evidence continues, programmed learning will do a more efficient job than we are now able to do. This leaves us with two choices. We can dig in our heels and resist all efforts to automate the teaching of reading, and die the death of the dinosaur, or we can join forces with the psychologists and try to influence the course of academic evolution. We have no choice but to understand the programmed learning movement. All history teaches that it is professional suicide to leave the development of important technology to outsiders.

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Reading and the Language Arts

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In this survey of the contributions of specialists in English and speech to the improvement of reading in college and adult programs, it will be essential first to recognize the inherent—if not always paramount—interest of staff members in English and speech departments in the growth of reading proficiency, next to discuss the nature of research activities and instructional aids produced by my colleagues, and finally to consider some of the problems we face in the predictable future.

It should be understood at the outset that teachers of English, communication, and speech courses in collegiate and adult reading-improvement programs are somewhat in the minority in the conception of research projects and in the presentation of their findings. Indeed, a survey of some ten to twelve research publications for the past decade indicates a ratio of approximately one-to-six in the publication of significant and useful articles on reading-improvement methods, techniques, practices, and analysis by those in the language arts as compared with specialists in education and psychology.

This situation is readily understandable when one takes into account the fact that English specialists ordinarily do not have the training in, or possess the requisite knowledge of, statistical procedures, of physiological and psychological processes, and of practice in setting up good, solid experimental or research conditions. Furthermore, most of these instructors spend most of their time in the teaching of composition, speech, and literature at various levels from freshman to graduate and adult courses. Problems of linguistic understanding and expression, or of adequate comprehension of literary works from *Beowulf* or Chaucer to T. S. Eliot and James Joyce, seem to be generally accepted as the primary task of members of English and speech departments. All the same, the matter of proficiency in reading is of daily concern to every one of these teachers. Traditionally, in his writing, speech, and literature courses, the instructor has utilized informal and individual methods to train his students in the understanding and appreciation of the printed page. In composition and speech

classes, he discusses, analyzes, and interprets the structure of a piece of writing as a whole at some length. He considers the relationship of paragraph to paragraph and analyzes significant structural elements within the paragraph unit. He calls attention to the effectiveness of the writer's or speaker's choice of words. And he dwells upon the author's main and subsidiary ideas, his use of rhetorical devices, his inferences, and his biases or weaknesses in presentation of the arguments set forth.

In literature courses, the emphasis shifts somewhat to reading for understanding, interpretation, and insight into the ideas of the significant writers of the recent or distant past. But here, too, the teacher is vitally concerned with improving his students' proficiency in reading. By analysis, by discussion of a writer's main ideas, his background, and the relationship of his techniques to those of his contemporaries and predecessors in poetry, drama, or fiction, the teacher seeks to foster the growth of understanding through reading.

It would seem logical to assume, therefore, that the English or speech teacher is or should be most conscious of his role as a reading teacher, both directly and indirectly. Yet the strong emphasis upon creative writing—and upon literary or historical research, and a reluctance to become involved with the tools of the craft of research in reading problems, have served to discourage many teachers of speech, communications, and English from pursuing this underlying interest in the techniques of reading improvement.

Nonetheless, it is evident that a respectable number of teachers of the English language arts are becoming aware of the demands upon them to recognize their responsibilities, to seek counsel and assistance from their colleagues in psychology and education, and to set up reading programs either as separate courses or as units within the regular departmental offerings of courses. At present a good many of the large institutions, both public and private, which have combined speech and English into the communications approach, provide an additional unit in reading proficiency. Also an increasing number of other universities, liberal arts colleges, and junior colleges are recognizing the necessity of providing reading-improvement training for their students in English and speech. Moreover, teachers of English language arts in the extension divisions of universities and colleges are coming to the

realization that the adults whom they serve in late afternoon and evening classes also need and can profit from instruction to improve their reading.

But in the face of the tremendous demands upon the collegiate and adult centers with the anticipated growth in enrollments during the next quarter century, these opportunities for reading-improvement must be considered only a beginning. If we are to satisfy the needs of the enormous numbers of people who will seek additional training in the decades to come, then specialists in the English language arts as well as in education and psychology will have to expand their facilities far beyond our present capacity—perhaps as much as tenfold. The magnitude of this burden is indeed great; and it is the duty of every specialist in reading-training to realize his obligations and to share his knowledge and experience so that others may become competent to deal with the reading improvement that will be necessary in the crucial years ahead.

Essentially, the production of articles for professional journals does result in a sharing of practical experience and experimental knowledge with colleagues and with succeeding generations of academic personnel. To be sure, the immediate demands to publish, to secure recognition of practices and innovations, often seems paramount to many professional people. But the end-product of good research, of excellent teaching methods properly presented, is to provide fellow and prospective teachers with insight, vicarious experience, and confidence to strike out on their own with such training as we are primarily concerned with in this conference—reading-improvement.

In this sort of endeavor, teachers of English and speech in college and adult circumstances have produced a number of useful publications on reading-training. To demonstrate this proposition, it will suffice briefly to consider representative articles which have appeared during the past ten years. For this survey, no attempt will be made to deal separately with adult and college programs, since the problems of teaching adults—whether young or not so young—are essentially quite similar.

To begin with, the case for the teaching of reading in English courses is set forth clearly by Frank M. Durkee, as follows:

With the diversity of reading skill existent in every entering freshman class, the college, especially the department of English, has a moral and educational obligation to develop a program to improve the reading skill of students, over and above its inherent responsibility to provide the maturity in reading which every college graduate should exemplify.

(4)

With this forthright conclusion, a good many of our colleagues, both in departments of English and elsewhere, might be inclined to differ, but Durkee presents the solution with insight and conviction.

Because of these very same doubts about the validity of teaching reading in English departments, a good many articles have been produced to set forth the practical results of courses in reading-improvement as offered by instructors in English and speech. For those interested primarily in research problems in reading, these descriptions of courses and expositions of successful programs are not always of the highest significance; but for administrators and teachers who face the necessity of originating satisfactory means of providing training in reading proficiency or of modifying their initial attempts to do something about reading, course-descriptions can be most helpful.

For example, Mary Mills (11), Edwin T. Sandberg (13), and William D. Baker (1) provide useful analyses of their practical solutions of the problem of integrating reading training with freshman composition courses. Facing almost insurmountable difficulties because of the limitations of time, Lewis E. Weeks, Jr. (24), shows how a self-help program was developed in the English department to bring about satisfying improvement in reading proficiency at the University of Maine. These are but a few of the many published essays on reading-improvement courses in colleges, state universities, junior colleges, and technical institutions (9) (12) (17) where English departments have assumed the responsibility for this training. In addition to this sort of integrated approach, Phillip B. Shaw argues for the installation of a Study Program embracing reading and study skills and encompassing practice in each of the processes which will aid the student to become self-dependent; in a later essay, Shaw goes beyond this position to demonstrate the need for reading-teaching in all courses—not just English. (15) In the areas of extension center instruction and adult courses, John S. Tuckey,

(20) and Ernest W. Kinne (8) describe their course-offerings in full detail, showing how specific techniques and practices are adapted to classes composed of adults of college age and beyond. And Ralph M. Williams' article on "Some Misconceptions about Teaching Reading Improvement to Businessmen" (25) presents practical applications of good reading techniques, with specific concern for adult groups of industrial and commercial background.

With regard to visual aids as useful for college and adult programs, James I. Brown sets forth a comprehensive exposition of the multiple uses of the tachistoscope for training in reading and related skills. (2) On reading films, Brian Durkin argues not only for the effectiveness of these devices for reading-instruction but also for their usefulness as texts for study in the improvement of writing techniques. (5).

On the matter of readers' comprehension of material and related skills, Ralph Eberly (6) considers the kinds of understanding which may be expected on tests of readers' grasp of material, and Lewis Ward (21) is interested in the means by which students demonstrate their ability on tests to adapt their rate and degree of concentration to different reading tasks. Harry R. Warfel (22) argues convincingly for the realization that all reading instruction must take into account the fundamental qualities of spoken as well as written language if the reading process is genuinely to be improved. For an approach to vocabulary development, Ernest Thompson (19) sets forth the advantages of the study of roots and affixes as a means of acquiring word power. But John R. Warner (27) decides that most vocabulary workbooks tend to place altogether too much emphasis on etymology and monotonous repetition of words already known by the student and not enough on the acquisition of words through reading and on contextual clues.

Research studies by members of English and speech departments are understandably few in contrast with the publications of psychologists and specialists in education, but several have appeared that offer interesting results for those of us concerned with reading-improvement. For instance, Granville B. Johnson (7) made a comparison of two techniques for the improvement of reading skills in college. One half of the students selected had extensive drill on reading skills and discussions of the psychology

of learning as applied to study habits. The other half was given group psychotherapy with emphasis on reading as a part of the study of the psychology of learning. Johnson concludes that both groups gained skill, but there were no significant differences in the results obtained. In a still more elaborate experiment, Jean B. Mayhew and Carl H. Weaver (10) compared four methods of teaching reading to college students; they found that almost any selections of reading material reasonably homogeneous in reading difficulty will prove effective. M. W. Tillson (18) analyzed the eye-movement patterns of more than four hundred college students undergoing reading instruction; his evidence demonstrates that eye-span can be increased effectively while regressive eye movements can be decreased significantly by systematic training in reading proficiency. As regards the crucial matter of retention of improved habits of reading, two studies have appeared: Russell Cosper and Newell C. Kephart (3) made an investigation of the retention by college students of attained reading proficiency some fourteen months after a period of intensive instruction, and G. B. Schick (14) reported on the reading skills of a group of businessmen as revealed by tests two years after the completion of a training program. Both studies show gratifying maintenance—from 60% to 80%—of the rates achieved by the end of the instructional program, with slight gains in comprehension.

The contributions of specialists in the English language arts in the production of textbooks and workbooks relating to reading proficiency have been numerous. A representative list of textbooks designed for reading-proficiency courses or units of study in college and adult classes includes the following:

James I. Brown, *Efficient Reading*, Heath, 1952. (With alternate edition.)

Russell Cosper and E. Glenn Griffin, *Toward Better Reading Skill*, Appleton-Century-Crofts, 2nd ed., 1959.

Walter S. Guiler and Claire J. Raeth, *Developmental Reading*, Lippincott, 1958.

Everett L. Jones, *An Approach to College Reading*, Holt, 1955.

Phillip B. Shaw and Agatha Townsend, *College Reading Manual*, Crowell, 1959.

Julia Sherbourne, *Toward Reading Comprehension*, Holt, 1956.

For special attention to the improvement of comprehension a

very useful and widely adopted textbook is the following:

Richard D. Altick, *Preface to Critical Reading*, Holt, 1956.

Other publications designed for particular help in vocabulary growth are the following:

James I. Brown and Rachel Salisbury, *Building a Better Vocabulary*, Ronald, 1959.

Rexford C. Davis, *Vocabulary Building*, Dryden, 1951.

W. Powell Jones, *Practical Word Study*, Oxford, 1943. (With alternate editions.)

Richard D. Mallery, *English Vocabulary Building*, Heath, 1948.

Samuel C. Monson, *Word Building*, MacMillan, 1958.

J. E. Norwood, *Concerning Word Study*, Prentice Hall, 1940. (With alternate editions.)

One other vocabulary book which is to appear soon is the following:

A. DeVitis and J. R. Warner, *Words in Context*, Appleton-Century-Crofts, 1961.

Finally, one member of an English department has been responsible for the production of a set of reading films entitled "Purdue Reading Films, College Series." (Audio-Visual Center, Purdue University, Lafayette, Indiana.)

The preceding titles of articles, books, and devices can scarcely be considered all-inclusive; rather, these materials have been cited as representative of the kind of contributions which our colleagues in English and speech departments have produced to further the improvement of reading by college students and adults.

Significant and timely and practical as these productions are, along with those contributed by specialists in psychology and education, it must be added with all speed and humility that these publications do not serve to solve all problems, nor do they provide complete answers to all pertinent questions concerning effective materials and procedures, techniques, and practices for the improvement of reading at the adult and college levels.

First of all we must reckon with the necessity of informing and educating the general and collegiate public about the usefulness of reading-improvement training, without the inflated claims put out by some highly publicized commercial organizations. It is particularly unfortunate that this sort of publicity is continuing, now that most of us in the non-commercial world are engaged in

emphasizing advantages other than speed alone for our training courses.

But a still more crucial task is that of preparing teachers of reading for the oncoming hordes of students. The truth is that the training of teachers in reading proficiency has not kept pace with the development of teaching aids and the publication of research projects. The preparation of instructors capable of conducting reading improvement courses is now woefully inadequate. In a recent study on the "Preparation for the Teaching of Reading in High School and College," Dr. Ruth Strang concludes that very few colleges and universities offer courses dealing with reading in college, although thousands of freshman college students need instruction in more effective reading and study habits. (16) Indeed, it may safely be predicted that within the 1960's alone, the demand for well-trained teachers of reading in the colleges may well exceed the present supply fourfold, and if the college population continues to expand as anticipated, the subsequent need for adequately prepared reading teachers will be even more acute. In all probability, the demand for teachers in adult programs will also rise proportionately.

This is one of the greatest challenges confronting those interested in reading-improvement today. Reading specialists must be forthcoming to conduct group-training in reading proficiency. Academic courses in theory and practice, in-service training programs, advanced seminars, and research projects—all of these must be developed or expanded unless the recognized needs of succeeding generations are to be seriously neglected.

But this significant and pressing matter of providing teachers trained to teach reading is only one of several other problems we must face up to. With the great increase in college population and the demands in industry for special training there is real danger that preoccupation with problems relating to the handling of large numbers of students will bring about a lessening of concern for the improvement of the *quality* of the teaching of reading. Mass production methods must not be permitted to force teachers of reading to forget that they are dealing with the individual reader, whose instruction is paramount, regardless of class average or the total number of his fellows in a particular classroom or reading center.

In addition all that we know now about the relationship of physiological and psychological factors to growth in reading skills and the complexity of the reading process is to be considered merely an introduction to what must be determined.

Research in techniques for the improvement of comprehension, in the refinement of tests by which comprehension (or various types of recall of materials read) may be increased and strengthened; studies of the growth in flexibility of approach to reading tasks, of the long-term retention of skills in reading proficiency—all these must be pursued with renewed vigor.

The entire area of vocabulary growth requires whole-hearted attention. At present reliance is placed largely upon the study of affixes and roots, of homonyms, antonyms, and synonyms, and of a very brief history of the language. These approaches to the improvement of vocabulary are admittedly sound, at least in part. But not enough has been done in the study of vocabulary growth as it is affected by wide reading under controlled conditions. It is well known that vocabulary improvement comes about for the reader who devotes himself to reading in various fields. But further analysis of the increase in vocabulary through contextual clues both for the general reader and for the student in a reading course may well give teachers of reading new means of stimulating vocabulary development.

If future tasks seem important and burdensome now, we must expect that new and puzzling difficulties will present themselves and require further study and research. The contributions of teachers of English, speech, and communications in the past to reading improvement have been worthy of mention. But these are only the beginnings, and it is essential that our colleagues in psychology and education provide us with guidance and example and instruction, in order that we may achieve the purposes set for our goal—reading proficiency.

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Freshman College English and the Reading Process

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Probably a minority of college teachers who conduct courses in freshman English would say that their responsibilities include the teaching of reading. It is usually taken for granted that any person considered ready for college will be able to read easily and well, and that any student who reads awkwardly ought to be sloughed off from the college rolls as expeditiously and diplomatically as possible, since he will not be able to do a good grade of college work anyway.

Such an attitude is likely to be a comfortable one for the teacher and for the administration, and students are usually not disposed to complain about it. This attitude may even be defended as a matter of principle, because it suggests a high-souled devotion to the business of raising academic standards. No teacher of college English is likely to be made to feel uncomfortable if he disavows any direct concern for the cultivation of reading skill while he devotes his precious energies to the perhaps more rewarding pursuits of writing for publication, analyzing aesthetic appeal, insisting on logical thinking, and otherwise spreading intellectual enlightenment. College teachers may, if they choose, be comparatively indifferent to the difficult challenge that necessarily is imposed on high school teachers—that of somehow bringing every individual student into rapport with group learning activity. A pupil who flunks in high school becomes at once an administrative burden, and may even come to be a nuisance; a college student who fails to maintain his C average simply leaves, and thus ceases to be a subject for concern. And yet there are teachers of college English who make an earnest effort to find out why this or that individual student has difficulty in clearing the academic hurdle presented by the freshman course. Such teachers, faced as they are with the problem of getting to know their students within the time limitation of forty or so class hours, will find that the simplest and most direct approach to understanding is through intelligent attention to the reading process.

In a sense, a college student should not need to be taught to read any more than a child needs to be taught to speak. Both reading and speaking are open doors to social communication, and both activities ought to be delightful and rewarding in themselves. Any child who is at all happy with his family and with his playmates will usually develop into a fluent talker. Similarly, children who have access to plenty of reading materials at their level of ability and in their areas of interest will sooner or later find that reading is an exciting, pleasurable, and infinitely worthwhile activity. But while only a very few children have any difficulty in learning to speak well, a relatively large number run into stumbling blocks in developing an ability to read easily and well.

For a teacher in the grades, it is most illuminating to ask children what books, magazines, and newspapers are available in their homes. Almost always it will be found that the pupils who do well in their school work are those who are generously provided at home with reading materials on their level of interest, and that those who lack encouragement to read are also those who find it hard to understand what is going on in the classroom. Quite often the college teacher will encounter freshmen who have somehow or other never discovered the fun of reading and who need only to be introduced to a few good books to set them off on an exciting adventure of discovery. It is not often that the illumination is very sudden or very dramatic, but one knows that something important is happening when students say—as they sometimes will—that they never knew that a required book could be so interesting.

Another stumbling block that sometimes leaves college freshmen staggering is a negative attitude that grew out of an early unhappy school experience. Students' attitudes toward reading are sometimes found to have queer origins. Unsuspected answers at times burst forth when in private conference the teacher of a troubled freshman asks sympathetically, "When did you first find out that English would be hard for you?" Some frustrated students seem to have the answer ready on the tips of their tongues: there may have been a speech impediment, long since overcome, which made it impossible to read aloud before a class; or there may have been a feeling of failure over a fifth-grade spelling assignment; or there may have been a point in ninth-grade grammar that was just

too hard to understand. Other students, more cautious, just do not say anything—it isn't polite, to criticize a teacher.

The English department at Louisiana Polytechnic Institute has developed a reading program for freshmen that is both realistic and practical. Basically, it requires students each semester to read at least five good paper-back books, which are assigned to the entire class. For the first semester, books are chosen which will be within the capabilities and interests even of those who have not previously acquired a taste for good reading, for example, *Huckleberry Finn*, *Mutiny on the Bounty*, and *The Good Earth*. For the second semester, more challenging literary works are used, among them *Don Quixote*, *Crime and Punishment*, and *Tom Jones*. Each teacher is free to make his selection of the required books from the supply of paper-backs available in the college bookstore, and each teacher is free also to use whatever techniques he may find effective in getting the students really interested in the books.

Testing is a critical part of the program. An adequate and economical test may consist of from twenty-five to forty objective-type questions on a single mimeographed or dittoed sheet. A good test may require the matching of ten to twenty names of characters with happenings in the story, followed by fifteen or twenty multiple-choice elements. A quiz on *Huckleberry Finn* might include such test items as these:

Matching

- | | |
|---|--------------|
| 1. Occupied a cabin on the Illinois side of the river | Walter Scott |
| 2. A steamboat that ran aground on a sand bar | Buck |
| 3. Misspelled the name of George Jackson | Pap |

Multiple-choice

4. Tom rejected Huck's plan for freeing Jim because it was
too easy too dangerous plain stupid morally wrong
- Such tests as these on book-length reading assignments do not take overly long to construct, and they take very little time to score. They are only incidentally useful as a means of grading student performance; but, much more importantly, they serve as a gauge for student reading habits. Every teacher needs to distinguish between the patient plodders in his classes and the cheerful optimists who suppose that semester grades are assigned by chance and that a gentleman-student will do only enough work to get by.

Objective-type tests over book-length material present no unreasonable obstacle to the patient plodders, but they invariably trip up the time-servers, who probably ought to be encouraged to exercise their talents elsewhere anyway.

Proficient readers are encouraged to read a great deal more than the required five books. They may report orally to the teacher on additional books from a selected list, with the understanding that reports on three thousand pages of reading will mean an advance of one letter-grade in the final semester mark. To save time, the reports are kept brief; usually the teacher pages quickly through the book to improvise questions that will determine whether or not the student has actually read the book carefully. Titles of books read for credit are recorded on five-by-eight cards which remain on file in the departmental office.

The basic reading requirement having been made clear, the students are ready for training in specific reading skills. Two aspects of skill that are likely to appeal to them are those of reading for ideas and a conscious acceleration of reading rate. An opportunity has been missed if students complain that they "just can't get started," or that they "just can't get interested." It should have been pointed out to them that an intelligent reader approaches a book through longer perspectives. One forms an idea of the whole by surveying chapter headings, by paging rapidly through the book while glancing at a paragraph here and there, and by trying to guess in advance what, essentially, the author is trying to say. Thereafter one reads for detail.

College students, pressed as they usually are for time, ought not to be left to take their accustomed reading rate for granted. To some of them it comes as a surprise to learn that verbalization, or thinking in terms of sounds of words, is quite unnecessary for efficient reading, and that an increase in rate of reading speed usually means no loss whatever in comprehension. If reading accelerators are available, individual students may on their own initiative chart the progress of their efforts to "break past the sound barrier"—usually about 180 words a minute—and to zoom up into reading speeds of five and six hundred words a minute. If tachistoscopic equipment is available, they may experience for themselves that it is possible, in a single instant, to grasp visually a great deal more meaning than one possibly could, within a comparable interval of time, translate into sounds.

A word of caution is in place here. Special techniques for the improvement of reading—and especially the techniques for accelerating the rate of reading—often bring about spectacular improvement with certain individual students. It is easy for a practitioner of such a special technique to go overboard in his enthusiasm for his favorite method and approach, and to assume that what has been effective in a particular case will be equally effective with the mass of students.

This is not so. Any teacher who has worked long and conscientiously with individual students in an effort to help them build their communication skills will recognize that the backgrounds and acquired habits of students differ so widely that generalizations about techniques are made only at a very real risk of over-simplification. The goal of the teacher in reading improvement ought to be an appreciative understanding of each student's individual personality, particularly his attitudes toward his studies and how he came to develop these attitudes.

In my experience with students who find freshman English to be a stumbling-block, I have found their attitudes toward spelling to be especially revealing. Inefficient reading habits are usually correlated with awkward spelling; and the reason, I think, is that both good reading and easy spelling require a similar attitude of mind—a readiness to think in terms of larger, more meaningful patterns (or configurations, or *gestalts*, or structures).

Always, students should be led to think in terms of larger units. Sentences should be thought of not as strings of words, but as organic structures for the expression of ideas. Similarly, spellings of individual words should be presented not as arbitrary, haphazard approximations of spoken sounds, but as parts of a historically intelligible system in which, through long usage, certain patterns and combinations of symbols have come to have precise meanings. One can sympathize with the student who has difficulty in accepting the irrationalities of our spellings, but imposition of harsh penalties for his lapses often does no more than to harden his already negative attitude. If one can instead lead him to understand that our spellings, like all language, represent an almost ageless cultural development, and that spellings have remained fossilized in the past several hundred years while pronunciations have changed, then perhaps he will be more ready to accept the system than to rebel against it. The

student who misspells *Britain* will usually have no more trouble if he is asked to recall the spelling of *captain* and *certain*. Such teaching, necessarily done on an individual basis, requires time, patience, and ingenuity, but it sometimes brings about surprising improvement—the result of a more rational understanding of the general nature of the language process.

A few unhappy students who have problems that are rooted in their own internal conflicts are bound to crop up in every unselected class of freshmen. Among them may be a slightly handicapped person who subconsciously nurses his disability, the hopeful young woman who expects that some man will solve her problems once and for all time, and the would-be conqueror of space who is too busy to bother with a dictionary. What these students have in common is not usually the sort of deficiency that shows up on intelligence tests but, rather, an attitude of rejection. Their hopes and ambitions, instead of reinforcing their grip on reality, have come to be for them instead a pleasurable escape from pedagogic demands. Even the most understanding and industrious teacher can hope to save only a very few of them.

The English department at Louisiana Polytechnic Institute has not found it expedient to establish "remedial" classes for rehabilitation of grade-point casualties. Experience seems to show that students who receive the doubtful favor of double teaching time or of non-credit instruction are all too ready to abdicate their responsibilities and to let their dear teachers do the worrying. It is, therefore, in the hope of bringing out the best in every student, rather than out of a feeling that anyone must be coddled, that teachers of freshman English at Louisiana Polytechnic Institute are interested in the reading process.

Teaching Machines and the Reading Program

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Educational automation is currently a bestselling idea among psychologists. This report is designed to introduce the idea to reading specialists and to demonstrate its applications in the college reading and learning service. The four sections of this paper are meant to aid in demonstrating programmed learning materials, explain some of the theoretical foundation, describe current teaching machines, and illustrate possible applications in college programs.

Programming

To understand programming, one should experience it. Here is an excerpt from a program designed to teach vocabulary by means of structural analysis.*

Directions: Read the section entitled PANEL. Then cover the answers in the left margin. Begin by filling in the blanks in item 1. Then expose the answer to item 1 in the margin to determine correctness. Continue with 2, 3, etc., in the same way.

Panel

Read this material first, and keep it out where you can see it whenever necessary.

Many English words are built by tacking pieces onto a root.

A root may be a word (*teach*) or a unit which you never see alone (*manu* in *manual*).

Prefixes are pieces put in front of the root.

Suffixes are pieces put after the root.

Many words are built by adding a suffix, a prefix or both, by adding two prefixes, or suffixes, etc., to a root, and sometimes by combining two roots.

ANSWERS

1. Some pieces of words you have known since you learned to talk. The word "*dog*" has two pieces: (1) the root - - -, and (2) -, meaning "more than one."
2. Verbs have many pieces tacked on to tell you who (did) and when. The word "*added*" has

* The excerpt is based on personal communication with Susan Meyer Markle and is used with her permission. A report of a study in which her material was used will be found in (4).

add
ed
hard
suffix
read,
read
three (3)

prefix,
suffix

un-,
able,
unable
unreadable

rest,
rest
3,
suffix,
suffix
blueness

restlessness

ladylike
3,
unlike

two pieces: (1) the root - - -, and (2) - -, meaning "in the past."

3. The word *harder* has the root _____. The -er is a _____.
4. The root of the word *readable* is _____. The root of the word *reader* is _____.
5. The word *unreadable* has how many pieces?
6. In the word *unreadable*, un- is a _____, -able is a _____.
7. The prefix of *unreadable* is _____; the suffix is _____. The prefix and suffix put together make the word - - a - - -.
8. If a book is badly printed, or too difficult, you are unable to read it, and we call the book - - r - - - - -.
9. The root of *restless* is _____. The root of *unrest* is _____.
10. The word *restlessness* has _____ parts; *less* is a _____, *ness* is a _____.
11. A "state" of being blue, or the "quality" of being blue is _____-ness.
12. When we talk about the "thing," the "quality," that a *restless* person "has," we talk about his r - - l - - n - -.
13. A girl who acts *like a lady* behaves in a l - - l - - manner.
14. The word *unladylike* has _____ pieces. The prefix and suffix together make the word - - l - - -.

Next, let's try an excerpt from a program designed by Blumenthal (1) to teach English grammar at a ninth grade level.*

2. Here is a *complete sentence* of only two words:
Birds fly.
We know what this sentence is about. It is not about *dogs* or *horses*. It is about _____.
2. birds 3. Birds
Birds fly is a sentence, but the word birds by itself is not a _____.
3. sentence 4. The word birds by itself merely *names* a topic that we might talk about. To make a sentence of it, we must *tell* something about _____.

* From *ENGLISH 2600: A Scientific Program in Grammar and Usage*, by Joseph C. Blumenthal, © 1960 by Harcourt, Brace and Company, Inc. Reproduced by permission of the publisher.

4. birds
5. Birds fly.
In this sentence, the word that *tells* something about birds is _____.
5. fly
6. Birds fly.
This sentence doesn't state that birds eat, sleep, or sing. It tells that birds _____.
6. fly
7. To tell about something means to make a statement about it.
Birds fly.
The word fly makes a statement about _____.
7. birds
8. A group of words that both names something and makes a _____ about it is a *complete sentence*.
8. statement
9. Birds fly.
These two words are a (*complete, incomplete*) sentence.
9. complete
10. Birds fly.
This little sentence is like most sentences because it has _____ parts: a *naming part* and a *tell'ng part*.
10. two
11. The part of the sentence that names the topic that the sentence is about is the (*naming, telling*) part.
11. naming
12. The part of the sentence that tells something or makes a statement about the *naming part* is the _____ part.
12. telling
13. Flowers fade.
In this sentence, _____ is the *naming part*, and _____ is the *telling part*.
13. flowers
(naming part)
fade
(telling part)
14. Glass breaks.
In this sentence, _____ is the *naming part*, and _____ is the *telling part*.
14. glass
(naming part)
breaks
(telling part)
15. Water freezes.
In this sentence, water is the _____ part, and freezes is the _____ part.
15. naming
telling

Rationale

The theory which underlies the use of teaching machines has been developed for the most part by B. F. Skinner, a psychologist at Harvard University. Skinner has formulated principles of learning based upon years of careful observation of animal behavior in the psychological laboratory. In recent years he has turned his attention to problems of human learning.

The dominant motif of Skinner's theory is "reinforcement." It is assumed that behavior, both animal and human, is shaped by its consequences. When a response is made, some effect in the environment is produced. If this effect serves to strengthen the response, learning has occurred. In short, if a response is to be learned, it must be followed by some type of reinforcement such as a material reward or knowledge of results. The law of effect is taken seriously by Skinner.

From the point of view of the law of effect, much school learning is very inefficient. In the typical classroom, the teacher can reinforce only a small portion of the responses being made. Or let us consider the typical reading exercise. The reader makes hundreds of verbal responses while reading the article. After reading the article, limited reinforcement is provided by the knowledge of results for a limited number of review questions.

In order to gain increased control over behavior, suitable contingencies of reinforcement must be arranged. Skinner defines "contingencies of reinforcement" as "the relations which prevail between behavior on the one hand and the consequences of behavior on the other" (7). It is the function of teaching machines to arrange contingencies of reinforcement so that reinforcement is contingent upon correct performance. For college students and adults, knowledge of results is probably an adequate reinforcement. For younger people, candy or the sound of a bell can be provided by machines.

The teaching machine has another advantage. It can provide reinforcement immediately after the response is made. Animal studies show that delay of even a few seconds between response and reinforcement hinders learning. In human beings, this factor may not be quite so crucial, but it can be safely assumed that too long a delay between response and reinforcement will not make for optimum human learning.

Skinner has had notable success in training animals through utilization of the principle of successive approximations. This principle is illustrated by the manner in which he teaches a pigeon to strike a marble placed on the floor.

This may be done in a few minutes by reinforcing successive steps. Food is presented when the bird is merely moving near the marble, later when it looks down in the direction of the marble, later still when it moves its head toward the marble, and finally when it pecks it. Any-

one who has seen such a demonstration knows that the Law of Effect is no theory. It simply specifies a procedure for altering the probability of a chosen response (6:200).

Automated teaching is essentially teaching through successive approximations. Through this procedure, a complex behavioral sequence is broken down into small component parts. The student starts out at the simplest level and by easy reinforced steps gradually progresses toward the goal of complex behavior. "A visitor once asked if Skinner had realized that pigeons were so smart before he began using them as subjects. The answer given by a helpful graduate student was that they were not so smart before Skinner began using them" (2:219). The point of this anecdote is that much behavior (both pigeon and human) consists of complex responses. The teacher cannot wait for them to occur before reinforcing them. They must be developed gradually through successive approximations.

It is a function of the teaching machine to present a sequence of stimuli in such a way that correct responses are produced so that they may be reinforced. If the correct response is not made, it cannot be learned. It is also important to avoid incorrect responses which might be learned instead of the correct ones. Simple questions on a program should prepare the way for the response to more complex questions, and the steps between questions should be so small that the probability of error is slight even for the poorest student. In Skinner's view, learning need not be difficult. Learning may be difficult under ordinary classroom conditions because an insufficient number of responses are reinforced, the reinforcements that are provided are not precisely contingent upon correct behavior, and the steps between successive approximations to complex acts are too large. Furthermore, the use of punishment to control classroom behavior serves to impede learning. These deficiencies are overcome by the use of teaching machines. From this discussion, it should be apparent that the teaching machine is not just another gadget. It is essentially an attempt to get the kind of control over classroom behavior that has been shown possible in the laboratory. As Holland has pointed out,

The new technology of education is the application of behavioral laws in modifying or controlling behavior. Such a technology becomes possible with the realization that we are actually referring to a verbal repertoire . . . controlled by the same laws as other behavior . . .

While machines are not the essential or defining aspect of this technology, they do play an important role in providing some of the fine control the technology requires (2:216).

Teaching Machines

Mechanical teaching aids and devices have been classified by Porter (5) as stimulus devices, response devices, and stimulus-response devices. Teaching aids classified as stimulus devices include the motion picture, television, and radio. Response devices include desk calculators and recorders. Teaching machines are classified as stimulus-response devices for they present stimuli to which responses are made and provide a means of recording responses. As Porter has pointed out, all teaching machines possess three operational characteristics: first, they present a sequence of problems to the student; second, they provide a means for the student to record his solution to the problem; and third, they immediately indicate the correctness of the solution.

Several articles which have been written have presented a historical survey of various types of teaching machines which have been used to investigate problems in automated teaching (3;8). Instead of describing numerous types of teaching machines, most of which exist only as experimental models, this paper will describe four simple and inexpensive devices which are commercially available. Four machines will be described briefly. No attempt will be made to evaluate them. They will be discussed in order from the least expensive to the most expensive.

The "1984 Machine" is shown at 1 in Figure 1. This device is produced by Teaching Machines Incorporated (Albuquerque, New Mexico) and is priced at \$19.84. Programs for the machine are printed on 8½" x 11" paper. Adhesive-backed answer strips are provided to allow the reuse of programs. Programmed materials are inserted at the bottom of the machine. The top paper is inserted manually under the viewing glass by use of the slots (E) at either side. When the question appears in the question window (A), the correct answer is covered under the opaque portion of the viewing glass (C). The student writes his answer to the question at window (D). After the student answers the question, he moves the sheet up to reveal the answer by inserting a pencil eraser in the advance slot (B). This movement places his written answer under the viewing glass so that he cannot

change it. A no-cheat spring prevents the paper from being moved downward so that the answer might be changed. After the student compares his answer with the correct answer and marks it accordingly, he advances the paper with his pencil eraser to reveal the next question. He then repeats the previously described sequence. When the top page is completed, it stays inside the machine and the next page of the program is revealed.

The "Program Scanner" (See 2 in Figure 1.) is produced by the Dyna-Slide Company (Chicago, Illinois). It is priced at \$39.50. This machine operates on the principle of a curtain on rollers allowing the scanning window to be moved up and down the page. The question appears at window (A), and the student answers the question at window (B). After answering the question, the student moves the scanning window down the page to reveal the correct answer at window (B). His answer remains in view for comparison. After marking his answer, he moves the scanning window down to reveal the next question.

This device holds up to 15 sheets of $8\frac{1}{2}$ " x 11" material. When the last question on a page is completed, the scanning window is returned to the top position and the top page is removed, thereby revealing the next page. The machine is adjustable to different positions and is collapsable for carrying or storage.

The Foringer Teaching Machine (See 3 in Figure 1.) is produced by Foringer and Company (Rockville, Maryland) and is priced at \$80.00. Unlike the other three teaching devices described in this paper which use programs printed on regular typewriter size paper, the programs for this machine are printed on rolls of tape. The answers are written on a separate answer tape, permitting reuse of programs. A manually operated typewriter roller action advances the program tape past a transparent window (A) and at the same time advances the separate answer tape past the answer window (C). When the student presses the lever (D), the question is revealed at window (A). The correct answer is hidden under the mask (B). The student writes his answer beneath the transparent cover at window (C). He then advances both tapes by pushing the lever. This movement reveals the correct answer above the mask and pushes his answer under the transparent cover so that it cannot be changed.

The student then indicates the correctness of his answer through a small hole in the answer tape window.

Overlaps with windows of different sizes are available. A continuously variable clutch permits variation in space for individual items on a given tape. The lever can be moved easily to either side of the machine to accommodate both left and right handed persons.

The Automated Teaching Didak 501 (See 4 in Figure 1.) is manufactured by the Rheem Caliphone Corporation (Hollywood, California). This device sells for \$157.50. Programs are printed on typewriter size paper and answers are recorded on a separate roll of tape to permit reuse of programs. Questions appear at window (A). Answers are recorded at the open space at window (H). This machine has a clue shutter (D) for giving additional teaching item information or prompts. After the student has answered the question, he moves control knob (G) to the neutral position (E). This moves the clue shutter (D) half way down to reveal additional information or prompts. At the same time, this movement of the control knob moves a piece of glass over the answer and moves shutter (I) in the answer window all the way down to make room for the second attempt to answer the question. After making the second attempt to answer the question on the basis of additional information, the student moves the control knob left to position (C). This movement moves shutter (D) in the stimulus window all the way down to reveal the answer and moves a piece of glass over the student's final answer so that it cannot be changed. After comparing his answer with the correct answer, the student punches a hole in the paper through hole (J) with his pencil if he has made an error. Errors are tallied on the answer tape by a digital counter inside the machine. The student then turns knob (B) in a clockwise direction to reveal the next question.

This machine can be adjusted so that three teaching item aperture sizes can be used. Panel holder (F) is for presenting information such as maps, charts, etc., which are external to the program.

It should be noted that all four of these machines can be adapted to either constructed answers or multiple-choice answers. Skinner prefers the use of constructed answers. On the other hand,

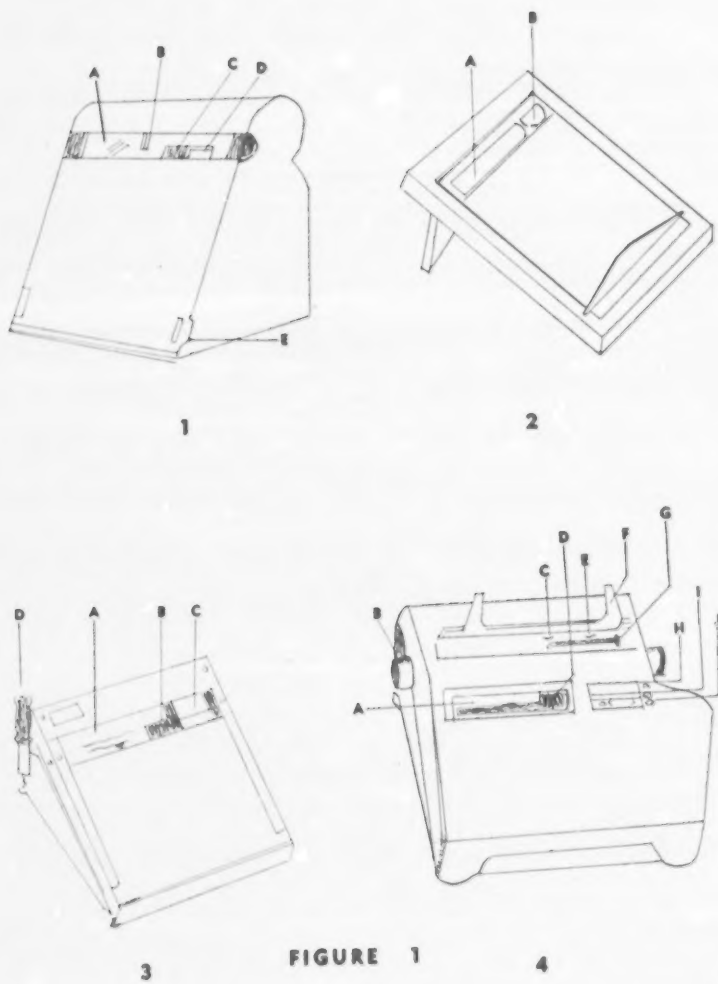


FIGURE 1

TEACHING MACHINES

Pressey, a pioneer in the field, advocates the use of multiple-choice answers. Research has yet to resolve this issue.

Applications to the Reading Program

The College reading laboratory is concerned with the development of many verbal skills, most of which are amenable to programming. Furthermore, many laboratories are also expected to provide instruction in learning techniques, sometimes to the extent of tutoring students in content subjects.

A scarcity of programs is the major flaw in this otherwise bright picture. Fewer than ten comprehensive programs are available commercially. On the other hand, we are all capable of constructing programs. Some of the areas which might be exploited, with some examples to help the fledgling leave the ground, are discussed in the following pages.

Reading

1. Vocabulary:

- a. Structural analysis (see Meyer's materials)
- b. Direct instruction

1. *Polarization* refers to the balance of negative and positive charges on the inner and outer walls of a neuron or nerve cell just before the neuron fires. When each negative charge is matched by a positive charge, we say that the cell is -----ized.
1. *polarized*
2. Upsetting the balance of charges results in the passage along the neuron of an electrical impulse. We say that the cell has fired and is now de-----ized.
2. *depolarized*
3. By means of its metabolic activity, a cell restores the balance of charges and becomes ----- once again.
3. *polarized*

2. Spelling:

- a. By vote

1. *Acetylcholine* is a chemical involved in transmission of nerve impulses. The last syllable sounds like the last syllable of gasoline. It is spelled a c e t y l c h o -----.
1. *line*
2. The chemical consists of two parts, acetic acid and choline. The first syllable of choline is *ko* and is spelled - - -.

2. *cho*
 3. *choline*
 4. *acetyl*
 5. *acetylcholine*
 6. *acetylcholine*
 7. *acetylcholine*
 8. *acetylcholine*
 9. *acetylcholine*
3. The chemical is made up of acetic acid and _____.
 4. The first part of acetylcholine is pronounced *a see' till* but it is spelled ----y-.
 5. The word is spelled - cetyl - - - - -.
 6. a - - - - - tyl - - - - -.
 7. ---t-lcho---.
 8. ---t-----.
 9. A chemical involved in the transmission of nerve impulses is _____.
- b. By rules (see Fundamentals of Spelling, Albuquerque, N. M.: Teaching Machines Inc., 1960).

3. Comprehension:

Programming for comprehension will require a more thorough analysis of the comprehension process than is generally found in treatments of the subject. For instance, use of short paragraphs with a question on the main idea seems to overlook a number of steps which must be carried out before a main idea can be determined: (1) comprehension of long sentences and of sentences with qualifying clauses; (2) grouping of sentences by similarity, by contrast, by order (i.e., time, space, cause-effect); (3) determination of the comparative level of abstraction of the sentence within the paragraph. Finally, the reader requires some systematic procedure for inducing and constructing the main idea after the foregoing steps have been handled.

Content Areas

The following programs are some which are available commercially:

English Grammar: Blumenthal, J. C., *English 2600*, Harcourt Brace and Company, Inc., New York, 1960.

Descriptive Statistics: Teaching Machines Inc., 235 San Pedro N. E., Albuquerque, New Mexico.

Inferential Statistics: Teaching Machines Inc.

Fundamentals of Spelling: Teaching Machines Inc.

Fundamentals of Music: Teaching Machines Inc.

Fundamentals of Algebra: Teaching Machines Inc.

Introduction to a Science of Behavior (Psychology): Holland, J. G., Department of Psychology, Harvard University.

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2. Holland, James G., "Teaching Machines: An Application of Principles from the Laboratory," in A. A. Lumsdaine and Robert Glaser (Eds.), *Teaching Machines and Programmed Learning*, National Education Association, Washington, D. C., 1960, pp. 215-228.
3. Lumsdaine, A. A., "Teaching Machines: An Introductory Overview," in A. A. Lumsdaine and Robert Glaser (Eds.), *Teaching Machines and Programmed Learning*, National Education Association, Washington, D. C., 1960, pp. 5-22.

4. Meyer, Susan R., "Report on the Initial Test of a Junior High-School Vocabulary Program," in A. A. Lumsdaine and Robert Glaser (Eds.), *Teaching Machines and Programmed Learning*, National Education Association, Washington, D. C., 1960, pp. 229-246.
5. Porter, Douglas, "A Critical Review of a Portion of the Literature on Teaching Devices," *Harvard Educational Review*, 27:126-147, 1957.
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The Assessment of Change

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To assess a pupil's current level of proficiency in any skill, ability, or subject-matter field, it is first necessary to define carefully and explicitly the variable being measured. Second, a test of the variable, or as close an approximation to it as can be secured, must be administered under conditions that assure a high degree of cooperation on the part of the pupil. Third, a pupil's obtained score must be compared with suitable norms, such as percentile ranks in his own age or grade group. Fourth, the possibility that the pupil's obtained score represents a sizable deviation from his true score must be considered. To do so, the standard error of measurement of the pupil's obtained score must be used to construct an appropriate confidence interval.* For practical purposes, the 15-percent confidence interval is often satisfactory and forms a basis for asserting that the chances are 85 out of 100 that the range of scores so designated includes the pupil's true score.

These four steps may seem unduly elaborate to many teachers and supervisors, but the task of assessing the pupil's *improvement* in any skill, ability, or subject-matter field may be even more complicated. This assessment is, however, of great practical importance to pupils and their parents as well as to teachers, school administrators, and supervisors. After all, the primary purpose of teaching is to produce improvement in the learner. Procedures that may be used in assessing improvement in learning will be discussed under the four main headings indicated.

Obtaining Appropriate Measuring Instruments

Test Validity. The first consideration in selecting an instrument for estimating improvement is the validity of the instrument for measuring what the examiner wants to measure. Teachers and administrators should give careful thought to the appropriate-

* In practice, the standard error of measurement precisely applicable to a given pupil's obtained score is rarely obtainable. If standard errors of measurement for several levels of score value are available, the one for the value closest to that of the pupil's score should be used. If not, the over-all standard error of measurement for the pupil's age or grade group may be employed.

ness of their measuring instruments prior to the beginning of the instructional period and select for detailed study tests that appear to measure the most relevant combination of skills, abilities, and knowledges. Ordinarily, a teacher interested in measuring the improvement of a pupil during all or part of a school year wants to know how well the pupil has learned certain specific skills that he has been practicing and how much effect his specific practice and his general maturation have had on his over-all proficiency. For example, to measure reading ability it is usually fairly easy to select tests of specific skills (such as oral reading, word recognition, or use of an index), but it is more difficult to decide which test of over-all reading ability measures the most appropriately weighted combination of skills. The total scores of tests of comprehension in reading commonly used in American secondary schools constitute measures of rather different combinations of skills and abilities. The *Iowa Silent Reading Tests* (4) include measures of study skill¹, and rate of reading in the total scores; the *Nelson-Denny Reading Test* (9) consists of rather highly speeded tests of word knowledge and paragraph comprehension; and the *Cooperative Reading Comprehension Test* (2) includes in its total score an essentially unspeeded test of word knowledge and both speeded and unspeeded measures of paragraph comprehension. It tends to have a more literary flavor than the two tests mentioned previously. The *Davis Reading Test* (3) yields two scores, the first an unspeeded measure of comprehension and the second a speed-of-comprehension score.

A source of unwanted and invalid variance in scores on aptitude and achievement tests that is often unrecognized even by sophisticated examiners is the practice of guessing on the part of many examinees. The effect of this practice is particularly troublesome when tests are used to measure *improvement* because, over a period of time, pupils are apt to change their rates of work or methods of approach to the task set by the test. If tests are scored with an appropriate correction for chance success, the directions for administration can legitimately discourage guessing and can reduce the effect of such guessing as nonetheless takes place. For these reasons, among others, the writer strongly recommends that only tests scored with correction for chance success be employed to estimate improvement resulting from learning. This is especially important in measuring growth in

comprehension in reading because many courses designed to improve reading stress speed of reading as well as depth of comprehension. Improvement in both objectives of instruction should, therefore, be measured separately. Unless the test of comprehension is scored with correction for chance success, it is, in practice, likely to become partly a measure of the examinee's tendency to mark answers to items even when he does not understand the material on which they are based. Since many teachers, psychologists, and school administrators are not familiar with the way guessing on the part of the examinee can impair the validity of test scores, illustrations will be provided here to show how it can spuriously increase or decrease the observed change in a pupil's score.

In 1949, Murphy and Davis administered Form B of the *Nelson-Denny Reading Test* to 393 eleventh- and twelfth-grade pupils in Nashville, Tennessee. (8) The 47 pupils who obtained the lowest scores were called in for retesting. They were encouraged to do better and to mark an answer to every item even if they did not know the answer. These instructions changed their mental sets toward the task and their methods of work. Their average score rose from 25.53 on Form B to 46.32 on Form A. Part of this increase was the result of regression to the group mean, but most of it resulted from the fact that pupils marked answers to a greater number of test items than they had at first. Since the scores on the test are not corrected for chance success, a pupil is likely to increase his score simply by marking answers to more items. After correction for chance success, the average score of the same pupils rose only from 13.62 to 15.62, a difference largely accounted for by regression to the group mean. Correction for chance success removed the spurious *inflation* of the observed gain in the average reading-test scores of the 47 pupils.

Another example will illustrate how correction for chance success can remove a spurious *reduction* of the observed change between testings. A ninth-grade pupil, markedly retarded in recognition vocabulary, was given the vocabulary section of Form B of the *Nelson-Denny Reading Test* at the beginning of the school year in September. Finding that he had great difficulty in reading the words, he moved rapidly along, marking every item and hoping to get a few of them correct on the basis of what he

could read. Since he actually did know the answers to some of the items, his score was better than could most reasonably have been expected on the basis of chance alone; he got a score of 23. The published norms indicated that this corresponded to a grade score of 11.0. After 9 months of school, including special tutorial work in reading with emphasis on word-recognition skills, he was given Form A of the same test. This time he approached the test differently because he could read the words more readily. He tried each item seriously and was able to read 34 of them in the time limit. Of the 34 he tried, he marked 14 correctly. The published norms indicated that this corresponded to a grade score below the beginning of grade 9. These scores might lead one to conclude that the boy had retrogressed markedly in recognition of words during the course of the school year. But we can easily show that this conclusion is unjustified. After correction for chance, the boy's score on Form B in September was 4; on Form A in June it was 9. Thus, correction for chance success removed the spurious *reduction* of the amount of improvement that the boy had actually made and showed that, in fact, he had increased his score.

Availability of Parallel Forms. Since the estimation of *improvement* demands testing at two different times, the availability of parallel forms is important. Thus, a teacher might prefer to use the *Neal Analysis of Reading Test*, of which several parallel forms are available, rather than the *Gray Oral Paragraphs Test*, of which only one form is available. It is undesirable to use the same form of a test more than once because a pupil may remember part of it or even look up some of the material in it during the interim between testings.

Accuracy of Measurement. Because the amount of improvement that can be shown to be statistically significant at any given level of confidence varies with the accuracy of the measuring instruments employed, it is desirable to use, among tests of equal validity and availability, those with the smallest standard errors of measurement at the score levels obtained by the pupils for whom improvement is to be established. In practice, it is often impossible to make comparisons among tests on this basis because few test publishers provide standard errors of measurement at several score levels. If reliability coefficients are compared, it is important that they shall have been obtained by similar methods

on reasonably similar groups, such as pupils in a given age or grade group. Whenever a test is appreciably speeded, reliability coefficients computed by split-half or Kuder-Richardson techniques are spuriously high in comparison with those computed by parallel-forms techniques.

Securing Consistent Rapport with the Examiner

It is important that the degree of cooperation and motivation shown by the examinee be as nearly the same as possible during all testing sessions. Otherwise, differences between the resulting scores cannot properly be ascribed to changes in the pupil's level of skill or ability. For the same reason, the approach of the examinee to the mechanics of testing should be consistent at all testing sessions. This does not mean that the mental set of the pupils should not change; after successful training in reading, for example, it is to be expected that pupils will anticipate and work on a reading test with greater confidence than they did before. Changes of this kind in mental set are a natural concomitant of the successful teaching of reading. What is meant is that mere familiarity with the format of items and answer sheet should not serve to increase a pupil's score. To minimize these irrelevant influences and, at the same time, to minimize the effect of regression to the group mean on the difference between test scores, two equivalent forms of a test may be administered to a class or grade group. Scores for the first of the two forms may be used to identify pupils for remedial instruction before the second set of test papers has been scored. Scores from the latter may be obtained and used for comparison with those obtained from a third parallel form given at the end of the period of remedial work.

Teachers and others may be surprised to find that considerable improvement in test scores ordinarily takes place between the first and second testings—improvement that would erroneously be ascribed to the effects of the remedial teaching if the second test had not been given prior to the training period.

One of the most important factors in keeping constant the pupil's approach to the mechanics of testing is the type of directions used. These should be clear-cut, understandable, unambiguous, and honest. If standardized tests are used, the directions given by the publisher must be followed precisely; otherwise, the norms may not be applicable. Therefore, when tests are

selected, consideration should be given to the adequacy of the directions. These should provide at least a brief explanation of how the scoring is to be done. Directions for tests corrected for chance success can, and ordinarily do, state this. The following phraseology has been found satisfactory for secondary-school pupils: "You should mark answers to items even when you are not sure that your answers are correct, but it is better to omit an item than to guess *wildly* because each one of your incorrect answers results in a small subtraction from the number of your correct answers."

Selecting Tests That Have Appropriate Standards or Norms

Tests used to measure a pupil's improvement should have norms appropriate for representative groups at the pupil's grade level even though the pupil's score may be equivalent to the mean scores of pupils in grades considerably higher or lower. Say, for example, that a pupil entering the ninth grade is scheduled to take the *Stanford Reading Test* in September along with his class. Even though his reading ability is known to be low, it is best to administer the Advanced reading test, which has norms appropriate to Grade 9 and is intended for pupils having the backgrounds and experiences of ninth graders. The change in this pupil's reading ability can then be estimated by one of the methods described in the next section of this paper. If the pupil answers no items correctly in September, the Advanced test will have been shown to be unusable and one of the lower-level tests in the same series should be administered to him. In fact, if the pupil's September grade score were below 40 (the lowest grade score on the Profile Chart of the *Stanford Reading Test*, Advanced) the inaccuracy of measurement would be sufficiently great to warrant the use of a lower-level test—say, the Intermediate test if his grade score were 30-39; the Elementary test if it were 20-29; or the Primary test if it were below 20. To measure progress the June test should be an equivalent form of the level of test given in September.

Estimating the Amount of Change

There are many ways of estimating the true amount of improvement (or retrogression) of an individual or of a group. In Table I, five methods for estimating the change in an individual and

three methods for estimating the change in the average of a group are provided.* These range from crude to sophisticated estimates. Choice among them is determined by the data available and by the use to be made of the data. A classroom teacher might have available only the data and time required for using Method 1 for individuals or Method 6 for groups. An experimenter, conducting a study to determine the gains made by certain individuals or groups, should make plans to obtain and use the data required by Method 5 for individuals or Method 8 for groups.

To illustrate the application of several of the methods presented in Table I to practical data, information about the scores of the 200 pupils in a public high school has been used. These data are shown in Table III. The pupils were tested in September with Form A of the *Davis Reading Test* and in June with Form F of the same test. Only the Speed-of-Comprehension scores of the pupils are considered for illustrative purposes. From the group of 200 pupils, one named Hazel Brown was selected at random prior to the first testing and was also given Form C in September and Form D in June. Her scores are denoted in Table III as A, B, C, and D. Averages of the scores on Forms A and B in the entire group are indicated by placement of a bar over the form letter.

Various estimates of Hazel's true gain in Speed of Comprehension are shown in Table IV. As noted in Table I, Methods 1, 2, and 3 should be used only if an individual pupil has been selected for retesting at random from an age or grade group. Even then, they provide no more than crude estimates unless the number of equivalent forms used in Method 3 is fairly large. In practice, a sufficient number of equivalent forms is not likely to be available for published tests. Hence, it is ordinarily best to plan to use either Method 4 or Method 5 if the requisite data and computing time can be obtained. Method 1 is the simplest and by far the most commonly used estimate of a pupil's gain. It consists simply of getting the difference between his initial and final scores. For Hazel, the difference (d_1) is shown in Table IV to be 5 scaled-score points. When the appropriate expression for D_1 in Table II is employed to find the smallest difference obtained by Method 1 that is significantly different from zero at the 15-

* Tables I, II, III, and IV are presented at the end of this paper.

per-cent level, Hazel's gain of 5 points is not established as significant. Hence, we cannot conclude that she has made any real gain in speed of comprehension in reading. It should be noted that the 15-per-cent level is not a stringent requirement for significance.

Let us see what our conclusion would be if we were to use the data from both Form A and C (given in September) and Form B and D (given in June). If we employ Method 2, as indicated in Table I, and find the difference between the average of these two pairs of scores, we obtain an estimated gain of 5 points, as before. Use of the appropriate equation from Table II to compute the smallest difference obtained by Method 2 that is significantly different from zero at the 15-per-cent level yields 4.3, as shown in table 4. Hazel's gain of 5 points is larger; hence we may conclude that this gain is significant. Increased accuracy of measurement provided by the use of averages of pairs of scores permits the 5-point gain to be regarded as significant.

Method 3 is presented in Table I to show how the average of any number of equivalent forms at either the initial or final testings may be employed. The corresponding test of significance for the 15-per-cent level is shown in Table II.

Methods 4 and 5 for estimating change may be employed even in the case of an individual pupil who was selected for retesting because he had an unusually high or unusually low score in the initial test. In practice, pupils are often assigned to remedial work in reading if their scores on a suitable test, administered at the beginning of the school year, are low. Then they are retested in June to find the extent of their gains, if any. Such gains should be estimated by Method 4 or 5. Let us say that Hazel's September score of 59 was one of the lowest in her grade and that she was one of the lowest-scoring 20 pupils assigned to remedial work. For her, Method 4, as specified in Table I, yields an estimated gain of 4.6 scaled-score points. Since a gain of less than 4.9 points, computed by Method 4, cannot be considered significant at the 15-per-cent level, as shown in Table IV, we cannot conclude that she has made a real gain.

It should be noted that use of Method 4 requires that the initial and final tests be administered to the entire group of 200 pupils in Hazel's grade group. Their scores provide the means,

$\bar{r}_A$ and $\bar{r}_B$, and are used to estimate reliability coefficients, r_{aA} and r_{bB} , as follows:

$$r_{aA} = 1 - \frac{s_{\text{meas } p}^2}{s_A^2}, \text{ and } r_{bB} = 1 - \frac{s_{\text{meas } p}^2}{s_B^2},$$

where $s_{\text{meas } p}$ is the standard error of measurement given by the

publisher for a sample of twelfth-grade pupils reasonably similar to the 200 in Hazel's grade group.

In addition to the data required for Method 4, Method 5 demands that the correlation of scores of the 200 pupils on the initial and final tests, r_{AB} , be computed. If Method 5 is used to estimate Hazel's change, a gain of 4.2 points is found. However, the increased accuracy of estimation provided by taking into account the correlation of September and June scores among the 200 pupils in Hazel's grade group permits establishment of the significance of this gain at better than the 15-per-cent level. The clear implication of this illustration for psychologists, teachers, and remedial workers is to make provision in advance for obtaining the data required for use of Method 5 whenever the effects of remedial or other special treatment are to be evaluated.

Estimates of change for a group of pupils chosen at random from an age or grade group can be made by Methods 6, 7, and 8 presented in Table I. If the members of the group have been chosen on the basis of their initial test scores, Method 6 should not be used for this purpose. As shown by the data in Table IV, an average gain of 1.3 points would be significant at the 15-per-cent level for a group of 20 pupils chosen *at random* from the 200 in Hazel's grade group. The amount of change in the group of 20 pupils selected from the group because of low initial test scores should be estimated by either Method 7 or 8. The former yields an estimate of 5.5 points and the latter 4.9 points. Both estimated gains are highly significant statistically since they both greatly exceed the smallest differences of 1.1 and .8, respectively, required to establish significance at the 15-per-cent level.

A word of caution may be in order with respect to the tests

of significance of the estimates of mean gain obtained by Methods 6, 7, and 8. These should be used as a basis for drawing inferences about the gain (or loss) estimated for any given group. They should *not* be used as a basis for drawing inferences about the gains (or losses) that could be expected in *other* comparable samples drawn at random from the same population and exposed to the same influences between tests. The bases for inference of the latter kind are the conventional appropriate standard errors of differences between means.

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TABLE I
Methods of Estimating True Change or Improvement

Estimate of Change (d) for an Individual Pupil

Chosen at Random from an Age or Grade Group

Difference Between Equivalent Obtained Scores

$$1. \quad B - A = d_1$$

$$2. \quad \frac{B + D}{2} - \frac{A + C}{2} = d_2$$

$$3. \quad \frac{\sum_{m} Y}{m} - \frac{\sum_{n} X}{n} = d_3$$

Chosen on the Basis of Initial Test Scores

Difference Between Regressed Obtained Equivalent Scores

$$4. \quad r_{bB}B - r_{aA}A + (\bar{B} - \bar{A} + r_{aA}\bar{A} - r_{bB}\bar{B}) = d_4$$

Difference Between True Scores on Tests That Yield Equivalent Scores

$$5. \quad W_B B + W_A A + (\bar{B} - \bar{A} - W_B \bar{B} - W_A \bar{A}) = d_5$$

Estimate of Change (d) for a Group of Pupils

Chosen at Random From an Age or Grade Group

Difference Between Averages on Tests That Yield Equivalent Scores

$$6. \quad B_g - A_g = d_6$$

Chosen on the Basis of Initial Test Scores

Difference Between Averages of Regressed Obtained Equivalent Scores

$$7. \quad r_{bB}\bar{B}_g - r_{aA}\bar{A}_g + (\bar{B} - \bar{A} + r_{aA}\bar{A} - r_{bB}\bar{B}) = d_7$$

Difference Between True Group Averages on Tests That Yield Equivalent Scores

$$8. \quad W_B \bar{B}_g + W_A \bar{A}_g + (\bar{B} - \bar{A} - W_B \bar{B} - W_A \bar{A}) = d_8$$

TABLE I (Continued)

Explanation Of Symbols Used

A, B, C, D represent individual obtained scores on equivalent forms of the same test (1:164);

X, Y represent individual obtained scores on any equivalent form of the same test;

m, n represent the numbers of equivalent forms administered to one individual;

N represents the number of pupils in an age or grade group;

N_g represents the number of pupils in a subgroup of the N pupils;

$\bar{A}$, $\bar{B}$ represent arithmetic averages of individual obtained scores of N pupils on equivalent forms of the same test;

$\bar{A}_g$, $\bar{B}_g$ represent arithmetic averages of individual obtained scores of N_g pupils on equivalent forms of the same test;

s_{meas} represents the standard error of measurement in the group of N pupils;

r_{aA} , r_{bB} represent the reliability coefficients of Forms A and B in the group of N pupils;

$$W_A = \frac{s_B r_{AB} (1 - r_{bB}) - s_A (r_{aA} - r_{AB}^2)}{s_A (1 - r_{AB}^2)};$$

$$W_B = \frac{s_B (r_{bB} - r_{AB}^2) - s_A r_{AB} (1 - r_{aA})}{s_B (1 - r_{AB}^2)};$$

$$s_{\text{meas}_{d_s}} = s_{d_s} \sqrt{1 - r_{d_s} d'_s};$$

$$s_{d_s} = \sqrt{W_A^2 s_A^2 + W_B^2 s_B^2 + 2 W_A W_B s_A s_B r_{AB}};$$

$$r_{d_s d'_s} = \frac{(s_B r_{AB} - s_A r_{aA})^2 + (s_B r_{bB} - s_A r_{AB})^2 - 2 r_{AB} (s_B r_{AB} - s_A r_{aA}) (s_B r_{bB} - s_A r_{AB})}{(1 - r_{AB}^2) (s_A^2 r_{aA} + s_B^2 r_{bB} - 2 s_A s_B r_{AB})}$$

TABLE II
SMALLEST CHANGE (D) SIGNIFICANT AT THE
15-PER-CENT LEVEL *

1. $D_1 = 2 s_{\text{meas}_A}$
2. $D_2 = 1.44 s_{\text{meas}_A}$
3. $D_3 = 1.44 \sqrt{\frac{s_{\text{meas}_A}^2}{m} + \frac{s_{\text{meas}_B}^2}{n}}$
4. $D_4 = 1.44 s_{\text{meas}_A} \sqrt{r_{aA}^2 + r_{bB}^2}$
5. $D_5 = 1.44 s_{\text{meas}_{d_5}}$
6. $D_6 = \frac{2 s_{\text{meas}_A}}{\sqrt{N_g}}$
7. $D_7 = \frac{1.44 s_{\text{meas}_A}}{\sqrt{N_g}} \sqrt{r_{aA}^2 + r_{bB}^2}$
8. $D_8 = \frac{1.44 s_{\text{meas}_{d_5}}}{\sqrt{N_g}}$

*Changes significant at any other level can be identified by appropriate changes in the equations. For example, if the expression on the right-hand side in each of equations 1 through 8 is multiplied by 1.36, the 5-per-cent level is provided; if each is multiplied by 1.79, the 1-per-cent level is provided.

TABLE III
DATA PERTAINING TO DAVIS READING TEST SCORES
IN A TWELFTH-GRADE CLASS

	<i>Scaled Score</i>		<i>Scaled Score</i>
A_i	59.0	r_{aA}	.81
B_i	64.0	r_{bB}	.87
C_i	61.0	r_{AB}	.65
D_i	66.0	W_A	— .57
$\bar{A}$	70.3	W_B	.61
$\bar{B}$	74.5	s_{d_s}	3.79
$\bar{A}_g$	60.1	$r_{d_s d'_s}$	.60
$\bar{B}_g$	66.1		<i>Number</i>
s_A	7.3	N	200
s_B	8.0	N_g	20
s_{meas}	2.9		

TABLE IV
ESTIMATED CHANGES (d) AND SMALLEST CHANGES
SIGNIFICANT AT THE 15-PER-CENT LEVEL (D) FOR
PUPIL i AND GROUP g

<i>Estimated Change</i> <i>(Scaled Score)</i>		<i>Smallest Change</i> <i>Significant at 15 % Level</i>
d_1	5.0	5.8
d_2	5.0	4.2
d_3	$6.0 \left[\frac{B + D}{2} - A \right]$	$5.1 \left[\frac{\text{average of two tests}}{\text{versus one test}} \right]$
d_4	4.6	4.9
d_5	4.2	3.4
d_6	6.0	1.3
d_7	5.5	1.1
d_8	4.9	0.8

A Conceptual Model of Reading Comprehension

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The nature of reading ability has been the subject of much speculation and considerable investigation. Although much has been learned concerning the relationship of the reading process to other types of human behavior and characteristics, considerable disagreement exists concerning the precise nature of the reading act itself. That reading represents a complex process, involving the total personality of the individual, has come to justify much of the confusion surrounding discussions concerning its teaching or measurement. Despite basic disagreements concerning the nature of the reading process, numerous psychometric instruments have been developed to appraise this complex process. Different standardized tests of course reflect the diversity in concepts regarding the nature of reading. Davis, discussed this difficulty as follows:

To build a test of reading ability, we must formulate a definition of reading that can be accepted as adequate and accurate by authorities in the field. This is not so easy as it sounds because there is no widespread agreement on exactly what reading ability is. (1:181)

The lack of consensus regarding the nature of reading ability, however, has not served to prevent test-constructors from developing standardized instruments designed to measure the process. In fact one very real difficulty which must be met by a reading teacher or researcher is to choose the test or tests which best suits his purpose. It should not be construed that those tests which are available today have no value. A wealth of evidence reveals a contrasting view. Despite certain differences in design and theoretical background many standardized reading tests have proved to have a certain reliability and validity when properly employed and interpreted. Some confidence also can be gained by the fact that almost all reading tests are found to correlate positively and significantly. Unfortunately no two tests seem to correlate sufficiently so that identity can be assumed.

When the difficulties faced in delineating and appraising

reading ability are considered, the problems appear to be somewhat reminiscent of the experiences encountered by an earlier generation of psychologists in attempting to describe and measure intelligence. It will be recalled that some students avoided the problem by defining intelligence as that which the intelligence test measured. Similarly, reading ability might best be described as that which is measured by the Iowa, the Davis, the Survey Section of the Diagnostic Reading Test, or some other specific instrument.

The difficulties in describing and measuring reading ability stem, of course, from the complexity of the process. Reading involves the total organism. An individual's ability to read involves not only his present attributes and skills, but also most of his past experiences and learning. Part of his success in reading stems from readily measured skills and abilities, while other equally or perhaps even more important factors appear to function less directly and are more difficult to appraise. Many of these latter factors grow out of thought processes, personality structure, and developmental stages and are undoubtedly basic to the total behavior of the organism. Although experience has shown that such factors influence the reading process and reading achievement they are not so susceptible or sensitive to changes by usual classroom instructional techniques as are such elements as word recognition, reading rate, saccadic movements and similar factors.

Despite the lack of consensus concerning the nature of reading ability which was previously noted, an examination of commonly employed standardized reading tests reveals a surprising agreement. Usually present-day reading tests supply the user with some indication of the subject's speed or rate of reading as well as furnishing some judgment about the level or amount of information he has derived as a result of reading certain selected passages. Reading rate generally is inferred by counting the number of words or lines read in a given length of time. Comprehension is determined by the testee's ability to select the correct foil from a multiple-choice type of test. The relationship of speed to comprehension usually is ignored. Similarly recognition is not given to the fact that good readers constantly vary their reading speed in the light of their knowledge of the subject discussed, and their purpose, motivation, set, and interest. These factors tend to be ignored. As pointed out in a previous discussion, the

relationship of reading achievement to mental ability, vocabulary, personal-social adjustments tends to be overlooked and spuriously high predictive validity coefficients result from the empirically developed reading measurements commonly employed. (3) If present-day methods of measuring reading achievement are to be improved it is necessary to identify the factors which comprise the global behavior and determine the degree to which each factor influences the total reading process.

In order to clarify this viewpoint, let us examine the role of thought in reading. Reading is commonly regarded as constituting a thought process. The relationship between reading and thought was emphasized by Thorndike over forty years ago (4). In 1937 the National Society for the Study of Education also stressed their belief that reading was intimately connected with thinking. The following statement represents their belief.

The Yearbook Committee believes that any conception of reading that fails to include reflection, critical evaluation, and the clarification of meaning is inadequate. It recognizes that reading includes much that psychologists and educators have commonly called thinking. (2:26)

While one must agree with the Yearbook Committee that reading is essentially a thought process, it is equally important to recognize that thinking is not identical to the reading comprehension. Rather than clarifying our understanding of the reading process, we have confused the issue by adding an equally complex and abstract term to further complicate the problem. The measurement of reading ability at the college and adult level usually emphasizes thinking and rapid learning while ignoring reading skills *per se*.

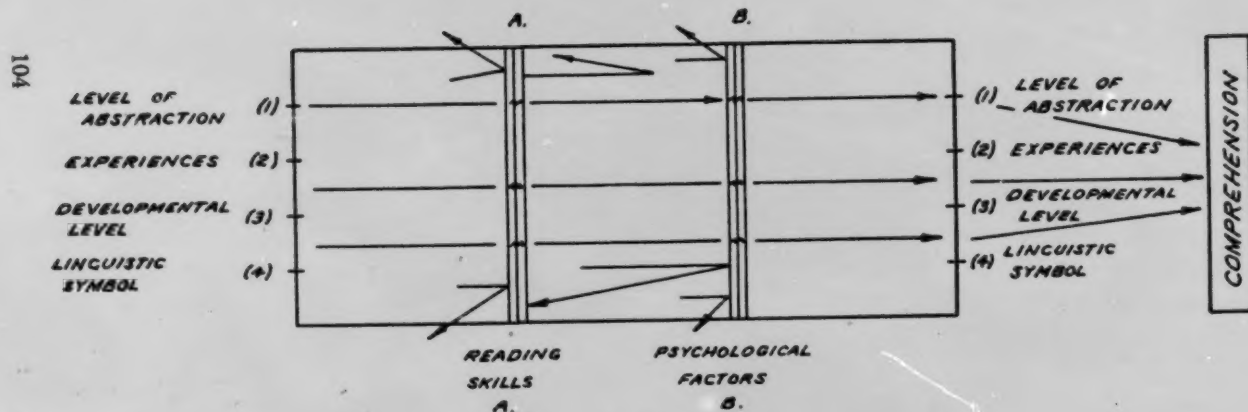
The inadequacies of reading survey tests led to a number of factor analysis investigations just prior to World War II. Most commonly employed reading tests have now been subject to such analysis. Such factors as perceptual speed, verbal or language ability, reasoning or organizing ability have been identified. Unfortunately factor analysis techniques could be utilized only with existing tests. Presumably additional factors might be obtained if somewhat different measures were available. The results of factor analysis studies seem to have had little or no effect upon the measurement of reading, for test-constructors have been reluctant or unable to use these findings in subsequent test development.

As one studies the history of the development of reading survey tests, one is forced to conclude that, other than technical refinements in the instruments themselves, there has been little advancement in the past forty years. The reading test of today continues to approximate those of previous years in design and content. The test constructor, of course, has merely followed the lead of the reading specialist who also has covered the same territory in his research and theories. It seems likely that we must seek bold new conceptual frameworks and theoretical designs if we are to make progress. We now give lip service to the idea that reading is a highly complex process. We have discovered that we cannot adequately define it by merely listing its observable attributes. Similarly we cannot explain it by using equally complex and abstract terms. A possible solution to our dilemma may be found in the methods of the logical empiricists, and in the use of operational definitions such as those employed in the physical sciences and in current personality research. Such an approach would have the advantage of providing a theoretical framework in which the components of reading could be treated separately.

The purpose of this paper is to suggest a possible approach to clarify the present difficulties described above. It is believed that it has the advantage of enabling one to reason in operational terms and to formulate certain conditions under which various components function or operate in the reading process. Conceptual models often are helpful in describing or clarifying complex phenomena. Such a model will be described in this paper. The model represents a preliminary stage of thinking and must be altered and expanded. It does not explain all of the many questions concerning reading comprehension, but seems to have the virtue of combining many known facts into a broad conceptual framework. Similarly certain postulates are presented which serve to explain the model. The model itself represents a dynamic model by which ideas and concepts are communicated from writer to reader via the printed symbol. It essentially states that if the past experience in learning of both the reader and the writer are such that both attach a common meaning to a language symbol, comprehension will result. The efficiency of reading skills and the personality of the reader may serve as barriers to the communication process. Figure 1 represents the conceptual model.

CONCEPTUAL MODEL FOR READING COMPREHENSION

FIGURE 1



The postulates which follow should be examined in relationship to the conceptual model. These represent merely preliminary stages of development and will undoubtedly be modified and altered subsequently.

General Postulate 1. Reading comprehension *can* best be understood as a product of communication that results *from* interaction between the reader and the writer. In the past the emphasis in reading has been on the skills and understanding of the reader, while the importance of the writer (communicator) has tended to be ignored. A good example is found in the development of standardized reading tests. In most cases, the test constructor selects materials which have been written by someone other than himself. He then develops test items (usually multiple-choice) which presume to measure a reader's comprehension. Logically such procedures measure the relationship of the reader's comprehension to that of the test-maker rather than the interaction of the writer and the reader. If the reader actively interprets printed symbols, *then* interaction takes place.

General Postulate 2. In communication, men often employ words as symbols. Such symbols are arbitrary, as symbols are meaningless in themselves. Meaning grows from assent or agreement among men and is, therefore, learned. Such meanings are developed through common learning experiences and these learning experiences are reinforced throughout the life span of an individual. Effective communication results from agreement concerning the meaning of symbols as developed from similar learning experiences.

- a. *If* the writer employs language which by virtue of its lexical and structural form is familiar or identical to that of the reader, *then* comprehension is likely to result.
- b. *If* the writer employs symbols whose meaning is common or identical to those attached to the symbols by the reader *then* comprehension is likely to result.
- c. *If* the writer employs symbols which represent a cognitive level of abstraction which is comparable or identical to the

cognitive level of abstraction of the reader *then* comprehension is likely to result.

- d. *If* the writer employs symbols which represent a cognitive level of abstraction that is less than that of the capacity of the reader *then* comprehension may or may not result.
- e. *If* the writer employs symbols which represent a cognitive level of abstraction which is greater than that of the reader, *then* comprehension will not result.
- f. *If* the meanings which the writer attaches to verbal symbols are different from those the reader attaches to the same symbols, then comprehension is not likely to result. The degree of difference in meaning attached to the symbols by the reader and the writer may determine the margin of misunderstanding which results.

Postulate 3 (Reading Skills). In all communication the efficiency by which a message is transmitted depends in part upon the effectiveness of the receptors. The efficiency of the reader in interpreting the printed symbol so that it becomes meaningful may act as a barrier to effective comprehension. A reader's mastery of the mechanics of reading—namely word recognition skill, may serve to facilitate or impede his comprehension of the message being communicated. Limitations in perceptual skill may impede or distort the transmission of the writer's message.

- a. *If* the reader is able to interpret the printed symbol with adequate facility and efficiency, *then* comprehension is likely to result.
- b. In the sense that the efficiency of perception (word recognition skill) is related to such psychological factors as motivation, set, and rate of association, skill in word recognition then serves either to facilitate or to inhibit comprehension.

Postulate 4 (Personality Structure of Reader). Communication between two individuals depends in part upon the sensitiveness of the receptor or person receiving the message. Numerous factors function to prevent a receptor from functioning efficiently. Lack of motivation or interest, excessive anxieties and unresolved needs, rigidity of personality structure, and active prejudices and biases

regarding the communicator or the message may all function to limit or distort message intake.

- a. If the reader is motivated to understand or "take in" the message being transmitted, then comprehension is likely to result. An inverse relationship also can be postulated.
- b. If the reader has been preconditioned so that the form and content of the message are such that he has been led to expect it, then comprehension is likely to result.
- c. If the reader is comparatively free from unresolved needs and anxieties which function to inhibit his relations with his environment, then comprehension is likely to result.

Reading ability in general and reading comprehension, specifically, are terms which lack clarity and definitiveness. The purpose of this paper has been to suggest one approach which might serve to clarify some of the confusion concerning these concepts. As previously stressed, the ideas represent merely a preliminary approach to the problem. It is hoped that we can gain new insights and raise new and significant questions concerning that highly abstract power, reading comprehension.

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Measurement in Reading

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In the past few decades, a great deal of research effort has gone into attempts to understand and improve measurement techniques in reading. We have labored hard to produce tests with good reliability, good validity, and equivalence of forms. We have factor analyzed the reading process and have constantly purified our measures. We are constantly developing new statistical methods to evaluate our tests. We have created new conceptual models and theoretical constructs such as the one presented in the previous paper by Dr. Kingston. We have explored various item forms and item contents, and we have experimented with various scoring systems. We have had long discussions and research designs concerning time limits and work limits. We have developed survey tests and diagnostic tests.

In spite of all this work and the resultant accumulated information, I think it is a fair statement of the consensus among professional people in reading that the survey tests do not really "survey" and the diagnostic tests do not really diagnose. Certainly everywhere I go I meet with the same general criticisms that were current thirty years ago. We all seem to agree that whatever battery of tests we are using is, as one clinician recently put it, "the best of a bad lot."

For some time now I have been convinced that our general lack of progress in relating diagnosis to treatment was due to the fact that we have restricted ourselves in reading measurement to achievement testing. Except for a few moves in the direction of measuring reading interests or attitudes toward reading, our reading tests have been measures of performance in a reading situation. To be sure, we have used other forms of testing in our diagnostic work, but they have not been, strictly speaking, reading measurements. For example, we have used personality tests of the questionnaire type to get very useful diagnostic information, but the content of the items and the scores obtained were not about reading. For some reason, we have not developed standardized approaches to using the wealth of information the client can give us about himself, if we just ask him. We are in

somewhat the same situation as the physician who attempts to make a diagnosis without saying, "How do you feel?" and "Where do you hurt?"

For more than seven years now, I have been doing research on the general subject of the ability of students to give meaningful and useful information about their reading behavior. In the fall of 1959, an article appeared in the *Journal of Developmental Reading*, by Raygor, Vance, and Adcock (3), in which reports of several studies were presented as part of a research program in which my colleagues and I were trying to make some sense out of students' self-descriptions of reading behavior. From my own research and from the reports of others who have examined self-appraisal in reading, I have learned a number of things. I found in the studies of Holt (2), Torrance (4), and Arsenian (1), as well as on my own subjects, that students were not able to give very reliable estimates of their general reading ability as measured by standardized reading tests. Typical correlation coefficients ranged from .20 to .40. Torrance found that the ability of students to predict their reading test results improved some after they had been tested in an orientation program even though the results of the tests were not made known to them. I found in an unpublished study that the ability of college students to predict their reading test scores did *not* improve over the period during which they were in our Clinic, even though half of them (the experimental group) were given practice in predicting the outcome of all exercises used in the program.

From all of the above studies, we came to the conclusion that we would not get much useful diagnostic information from students by asking them to make global, single judgments about their reading. Dr. Forrest Vance and I determined to attempt construction of a diagnostic instrument in which the subject gives responses to items representing very specific reading behavior. Just to be sure that we would not unwillingly build our own diagnostic bias into the instrument, we decided to let the students write the items. The process by which we got the items from the students is described in the *Journal of Developmental Reading* article (3); and I won't go into it here except to say that we had students make many statements about their reading and we whittled down the number by taking out the duplications.

We now have a pool of 285 items from which we have now built a number of experimental scales.

Since this is an item pool in which we are getting the subjective responses of the students, it may be necessary to explain that the scales we hope to derive and standardize are *not* subjectively derived scales. No items will be included in any scale on the basis of judgments concerning the content of the items. All scales will be empirically derived, by item analysis, criterion keying, validation, and cross-validation. This test building approach is in clear distinction to the questionnaire in which one asks questions, the answers to which the questioner believes will tell him something. Our item responses are considered not as "answers to questions," but as discrete pieces of response behavior which can be shown to be collectively predictive of membership in criterion groups. No necessary relationship exists between the apparent meaning of the items to the reader and the behavior predicted by the resultant scales. This difference between content keying and criterion keying often clarifies things for the person who "does not understand how we can hope to trust tests in which we are asking such personal questions that the subject might not tell the truth," or who "might not understand what we want him to tell us." The answer, of course, is that we are not much interested in what he wants to do to us or for us, or whether he always gets the same meaning we do from the item. What we *are* interested in is the *response* he gives when presented with this stimulus.

We *have* been interested in the content of the items, partly because we are curious about the kind of things students say when you ask them to describe their reading. We have found, in this connection, that the kinds of statements made by students in a reading clinic differ from the kinds made by non-clinic students in several ways. The clinic students made many more statements reflecting negative feeling tone about reading than the non-clinic students. There were also differences in content.

From the DRI item pool, we have now determined a number of things. The items in the pool which are statements related to reading ability have been shown to be predictive of measured reading at about the same level of predictive accuracy as most intelligence tests. The same may be said of items which are primarily expressions of emotional responses. Scales built out of

these two kinds of item content (*i.e.*, ability related statements and emotional statements) correlate with the *Diagnostic Reading Test*, Survey Section, at .50 and .45 respectively. These two scales were also highly related to each other (.71).

An inverse cluster analysis provided six sub-groups of people whose responses to the total item pool were similar within groups. Scales built on the basis of a subsequent item analysis have not been promising as a diagnostic tool, but may become useful as we understand the sub-groups better.

We are now trying to build scales which will identify criterion groups whose characteristics we can specify ahead of time. Our current "crash" program is an effort to build a scale which will identify those students who would be perceived by a clinician to need counseling as well as instruction. This scale has now been through its first cross-validation and, surprisingly, still contains 68 items. Validity studies using these items are now being done.

The most encouraging thing about this whole research program is that the data have been behaving so well for us. For example, just to see if our item pool was capable of distinguishing between clinic cases and general student population, we "item analyzed" between these two groups. After two comparisons, we found that we still had 218 of the 285 items. It is most pleasant to contemplate the unusual task of choosing among "too many good items."

We are so encouraged now that we are immediately starting to work on a number of other scales and of the same general item pool. One will be a self-perception scale, designed to tell us to what extent the student perceives himself as a poor reader or a good reader. Another scale will possibly enable us to isolate those students who may be over-concerned or under-concerned with their reading problems. We would like to try a scale to identify those difficult cases who are the very rigid, compulsive readers who have so much trouble making progress in any kind of reading program. Suggestions for other scales would be most welcome.

We do not see this approach as a substitute for more traditional achievement testing. We see it as a promising source of supplementary information which may tell us not only what is wrong with the reader, but also what to *do* about it. Fortunately,

this will render a great deal of useful information with a minimum of time, since all scales would be built out of the same item pool; and the students can answer the whole thing in 20-30 minutes. Also, as the need for other types of diagnostic information becomes evident, new scales can be developed and added without changing the original test in any way.

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Integration of Reading Instruction with "Regular" College Offerings

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A Precept About Reading Development

The basic premise of this paper is based on the obtained response to the following item of a questionnaire that was sent out recently to college reading personnel:

Do you agree with the position of Dr. William S. Gray that instruction on reading development is a requisite part of a student's regular education in elementary school, high school, and college?

The proportions of the various responses received were as follows: *Agree*, 89.0%; *Disagree*, 7.5%; *Undecided*, 3.5%. This strong agreement comes, of course, as no surprise to reading specialists. Our profession is well aware of the desirability of assuring that students make the most of their increasing opportunities for personal development as they ascend the educational ladder. If the precept of a sequential reading program from the elementary school through the university means something, it must be supported by practice. It is therefore germane to ask how many of today's 900,000 freshmen at the nation's 1900 colleges are enrolled at schools prepared to continue the reading development of all of their students, superior and inferior students alike.

Practices of the Nation's Colleges

Currency of Programs. The responses to the questionnaire, sent in the fall of 1960 to 505 colleges and universities, at first view invite optimism. Of the 350 schools that returned the questionnaire, a total of 242 reported that they are currently offering some kind of formal instruction on reading improvement. (A list of these institutions is presented at the end of this paper.) The indicated responses to the given questionnaire items which follow reveal a considerable number of well-established reading programs.

The 242 affirmative schools reported that their reading programs had been in existence for the following indicated durations:

For 0-3 years, inclusive 30 schools

For 4-9 years, inclusive	128 schools
For 10 or more years	84 schools

To the question, "Do you expect the program to be offered during the next few years?" two schools answered No, and 240 schools answered Yes. In answer to the following question concerning expected enrollments, the proportions of various responses below were obtained:

During the next few years, do you expect the total enrollment of students in the program to have changed appreciably?

No	87 schools
Increase	131 schools
Decrease	14 schools
Blank	10 schools

On the surface, the above statistics are preponderantly affirmative. It must be realized, however, that the selection of the 505 colleges that were sent the questionnaire was based on a list of 268 institutions that are known to have given such programs.* Furthermore, the indicated responses, of the 108 institutions reporting no programs, to the following question concerning past and future programs do not invite optimism:

During any of the years of the 1950's, did your institution offer such a program?

Total No	58 schools
Total Yes	46 schools
Blank	4 schools

The 46 schools responding affirmatively reported that their reading programs had been in existence for the following lengths of time before being dropped:

For 0-3 years, inclusive	17 schools
For 4-9 years, inclusive	24 schools
For 10 or more years	5 schools

The various proportions of responses indicated below were obtained to the following question:

* All institutions listed by Causey in 1955 (3) as offering skills-improvement services were sent the first questionnaire.

Do you expect the program to be offered during the next few years?

No	61 schools
Yes	33 schools
Blank	14 schools

Thus, it would seem that 40 to 45 per cent of the institutions replying negatively have discontinued a reading program. And of these, approximately two-thirds have discontinued services that had been established for more than three years. Moreover, more than half of the institutions that have no reading program do not intend to institute one. It is apparent, therefore, that a gap exists between the practices of the nation's colleges and the precept of a sequential reading program for all students from elementary school through college.

Previous studies of college reading improvement programs also indicate a gap between practice and precept in this field. For example, in 1955, Causey sent questionnaires to "all senior colleges and universities and to a representative list of junior colleges" (4:135). Over 1800 colleges and universities in the United States existed at the time. Yet, besides 157 schools that reported no reading program at all, more than 1000 institutions apparently failed to reply to the questionnaire. Assuming that a school would wish to participate in a national survey of a special service that it offers, this latter figure has vastly negative implications concerning the total number of the nation's institutions of higher learning that have failed to offer formal reading instruction.

Enrollments. In response to the questionnaire, 242 colleges and universities reported a total annual reading program enrollment of 49,185 students. This is an imposing total. But the resulting average reading-enrollment of 203 students per half year is not imposing and, moreover, does not compare favorably with total college enrollments, since the questionnaire was sent to almost all of the nation's colleges that had academic enrollments of approximately 3,000 or more. Earlier studies by Barbe (1), Blake (2), and Causey (4), that provide statistics concerning enrollments in college reading courses, also indicate that only a limited segment of the school population is served by most programs. Furthermore, in a report by Woods in 1957

on Wisconsin teachers colleges, it should be noted that the total reading enrollment of 600 students reported by 47 institutions, includes the large University of Wisconsin (14). A recent study by Jones reveals definite priorities and limitations for enrollment in college reading programs, the policy usually being to admit selected freshmen first, or as described by Jones, to "take first applicants until all space is gone" (7:28).*

Previously presented facts and figures disclose an unmistakably wide gap between practices concerning reading programs at the college level and the precept that instruction on reading development is a requisite part of every student's regular education in elementary school, high school, and college.

Hours. The statistics below summarize the number of schools having each of the reported total of hours of the core program of reading improvement (expressed in terms of the standard unit of 15 hours per credit) and the number having each of the reported groupings.

Core Program

A total of 1-15 hours	55 schools
A total of 16-30 hours	76 schools
More than 30 hours	64 schools
Qualified and miscellaneous responses	47 schools

Groupings

All hours for groups of over 50 students	4 schools
All hours for groups of 26-50 students	33 schools
All hours for groups of less than 26 students	96 schools
All hours for clinical situations	23 schools
Combinations of groupings of less than 26 students and of clinical situations	51 schools
Other combinations of any two groupings	15 schools
No response	7 schools

* In 1951, whereas Barbe (1) learned that of 95 major colleges and universities almost half offered a developmental reading course, the average reading enrollment was only 300 students a year. A similar average can be derived from Causey's report of 1956 (3) by dividing the given total reading enrollment of 57,052 students by 419, the total number of institutions that reported reading programs.

Statistics about the institutions reporting discontinued reading services and responding to the items concerning the core program and the groupings reveal a similar spread in both of these categories.

The above potpourri of statistics is a clue to an absence of standardization or commonality of certain basic practices among college reading programs. This lack of consistency is also reflected by the professional literature. It is the belief of the present writer that these variations are symptoms of a cause of the wide gap between present practices of college reading programs and the precept that every student's sequential reading development should be continued at college.

A Cause of the Gap Between Precept and Practices

The present writer believes that a cause of the gap is disclosed by the following questions and the indicated statistics relative to responses obtained.

Is the reading instruction offered separately or with the instruction of a "regular" course or other program?

A separate program	222 schools
Part of another course or program	20 schools

Has the reading program been organized in the same manner (either separate or with other instruction or guidance) since its beginning?

Yes	194 schools
No	42 schools
Blank	6 schools

Actually, the already large number of separate programs disclosed by the responses to the first question seems to be greater still. In reply to a request that the "other" course or program be identified, almost half of the respondents indicated that the reading instruction is "part of" a broader reading or study program, a qualification that actually classified the reading program as a separate offering. Further revealing the prevalence of separation of reading instruction from "regular" college instruction is the estimate that, of the institutions that reported discontinued programs and that responded to the items about separation or integration, a large majority stated that these services had been separate when discontinued and had always been separate.

To depart from objective reporting, I should like to venture some subjective remarks based upon actual experience and upon discussions with college reading personnel. The truth of the matter is that professionally we are too frequently bucking the campus budget and personally we are too often put on the defensive. The demand of students for a reading service regularly exceeds our facilities. Yet, during the bargaining periods, when the various regular campus departments compete for slices of the budget pie, at worst we wait like Lazarus for crumbs, and at best we make oral pleas and submit formal written recommendations that are demanding on our time, energy, and sense of balance. Furthermore, sometimes we feel a recurrent necessity for justifying our work to our colleagues. With aplomb and goo humor, we may be constrained to listen to a stabbing remark such as, "My student Miss X tells me that you are teaching her to *read*." (The gentle emphasis given the last word is the twist of the blade.) Does a college reading teacher exist who has not been harassed by colleagues who demand, "Why don't the high schools teach our students to read" "Why must we do their job?" (Our colleagues usually don't expect an answer; and they merely stare at us when we very sincerely reply, "Should high school teachers teach college-level skills?")

If the previous subjective evaluations of the difficulties and harassments faced by specialists in separate reading programs are not too far from the truth, is it any wonder that many colleges have failed to establish reading programs; that many of those who have succeeded in instituting a program must limit enrollment to only a segment of the student body; and that among the established programs there is an absence of standardization of certain basic practices?

A Means of Closing the Gap: Integration

My point is that if one believes that instruction on reading development is a requisite part of every student's *regular* education at college, one should consider the advantages of offering such reading instruction as part of a *regular* course. As indicated below, despite the great preponderance of separate reading programs in the nation's colleges, about half of the reading specialists that replied to the following questionnaire item did not oppose integrated instruction.

Apart from "remedial" help for the poorest students, do you agree that the core of whatever formal "developmental" reading instruction is given should necessarily be offered in a separate course, as opposed to integration of the total reading program with one or more "regular" courses?

According to the questionnaire results, 50% of the respondents "agreed," 37% "disagreed," and 13% were "undecided." The very low number of schools that can be said with certainty to be offering reading integrated with other instruction does not allow us to reach any significant conclusions. Furthermore, more of these programs need to be described in the professional literature.* Nevertheless, from a broad curricular viewpoint, there are three alternatives for organizing a college reading development program with "regular" offerings: the reading instruction can be integrated (a) with a regular course required of all students, (b) with a group-counseling or orientation program for all students, or (c) with the regular instruction of all teachers of lower freshmen.

Integration with a Regular Course

As for department responsibility for the reading program, the questionnaire elicited the following responses to the given question:

Under the auspices of which department or division is the program conducted?

Education	68 schools
English	60 schools
Counseling (including orientation and a Dean's program)	53 schools
Psychology	33 schools
Other auspices	28 schools

Statistics for colleges with discontinued reading programs show a similar spread of auspices. Let us first consider the effects of the sponsorship of a reading program integrated with a regular course of the departments of, respectively, Education, Psychology, and English.

* College reading programs integrated with regular courses are described by Kruglak (8), by Sister M. Fridian and Sister M. Rosanna (6), and by Warlick (13).

Education. Education logically ranks high as the sponsor of a separate college reading program since training in methods and practices of teaching relies upon skills-improvement instruction. At present, however, this department does not appear to be the best sponsor of a reading program integrated with a regular course. In a liberal arts college, no standard course in education is taken by all of the students. In teachers colleges, a basic course in education that is required of all students usually is not intended for lower freshmen. Yet, according to the principle of sequential development of reading ability, a student should strengthen his potentiality at each rung of the educational ladder, especially as he ascends to a new section of the ladder. When a student takes the step from the upper senior term of high school to the lower freshman term at college, his former learning skills and habits require immediate reinforcement to launch him on his college career. Thus, as long as "general education" is limited to the early terms and specialization begins during the later terms, even at teachers colleges and for education majors in other schools, a reading improvement program probably cannot be organized effectively with a "regular" course offered by the department of education.

Psychology. Although this department is logically a common sponsor for separate reading programs, it also does not seem to be the best one for an integrated reading program. Courses in psychology are strictly "content" courses. A mixture of "content-teaching" and skills-training in the same course would require the instructor, like Prospero in Shakespeare's *Tempest*, to put on or take off a special robe to show his audience which one of his two roles he is about to play.

English. The reason why the English department always is high on lists of auspices under which separate reading improvement programs operate is clear. English instructors are language-arts specialists and, as teachers of writing, are experienced in affording instruction on skills-improvement. The nationally accepted lower-freshman course in "composition" or in Freshman English is, moreover, a logical source of instruction on reading development.

*An integrated course in the language arts brings together subject matter that is already closely related. Even in traditional

writing courses, college English instructors teach students to transfer their skills among the four language arts of writing, reading, speaking, and listening. For example, if I may refer to my own views again, in my teaching I support the following recommendation of the poetry editor of *The Nation*: "For most [literary] works, a first, largely uncritical but alert reading is helpful simply to get an overall sense of the set, the feel, of the whole" (9:155). In my English classes, freshmen and senior alike, I accordingly recommend to my students that they attack their lessons by two different readings, first quickly for the main points and then carefully and critically for thorough comprehension. Similarly, I encourage my students to listen especially for main ideas during classroom discussions and lectures. As for speaking, my students are expected to observe high standards regarding the relevancy, organization, and significance of the main ideas that they express. If I succeed at all, the students learn that the skills of the language arts of writing, reading, speaking, and listening are very much related. (The importance of grasping the main idea is one of the basic ideas of Bibliography Items 10 and 12).

Integration with Group Counseling

The leadership of counseling as a sponsor of college reading programs is very recent. In Causey's report of 1955, for example, counseling is not listed as one of the leading sponsors, whereas the relatively high ranking of counseling in my study has been noted also by other investigations (5).

The recent rise in leadership of the division of counseling as a sponsor of reading instruction at college levels can be attributed to the increasing attention given during the 1950's to the concomitance of college-adjustment problems and reading problems. Numerous colleges have adopted freshman orientation programs. A course having as twin objectives both the personal development and the reading development of all lower freshmen provides a second alternative, along with an English course, for the integration of reading instruction with a regular campus offering.

Integration with Lower Freshman Courses

Elsewhere, the present writer has recommended that each instructor of lower freshmen should do the following: (1) help his students to increase their ability to read textbooks and

reference materials in his particular field, (2) lead his students to develop their vocabulary in his field, (3) aid his students in developing other skills leading to proficiency and scholarship in his field, (4) anticipate the special needs of his deficient students, (5) induce his students to utilize their pre-course experience in his field, (6) create in the minds of his students a strong impression of design in his courses, and (7) cultivate his students' interest in voluntary reading (11).

Already on numerous American college campuses faculty members of special groups are called to meetings "to talk shop." Teachers of English composition gather to discuss grading standards; teachers of integrated science, of integrated social science, and of communications courses meet to coordinate objectives; counselors participating in orientation programs come together to plan procedures. Likewise, teachers of lower freshmen can be called to intra-departmental and inter-departmental meetings at which a reading specialist, either one already on campus or one "borrowed" from a neighboring institution, discusses the skills of college reading.

Whether a particular college chooses to integrate reading instruction with English, with group-counseling, or with lower-freshman courses would depend upon the special characteristics of that institution. Nevertheless, the basic reading skills taught would be similar in all three types of integrated instruction. There is a need, therefore, for a guide to curriculum planning and instruction on reading development at the college level. College administrators will want aid in organizing and executing the reading aspect of an integrated program. College reading specialists themselves would benefit from a teacher's manual that describes reading and related skills for college study and that suggests methods and materials for teaching these skills.

Besides the need for a guide to curriculum planning and instruction for college-reading, there is also a need for greater recognition and acceptance of the principle of a student's sequential reading development from the elementary school through college. More individual colleges should conduct investigations of the particular characteristics of their incoming students. These characteristics should be studied in relation to the differences between high school study and college study and the students' ability

to meet the new intellectual demands resulting from these differences.

Above all, studies should investigate the widespread belief that the characteristic reading needs of lower freshmen are deficiencies that go back to their high school training rather than new needs due to the differences between high school and college. Until there is national acceptance of the principal of sequential reading development, a standard program of reading instruction integrated with a regular college offering will remain in the nation a goal only to be hoped for but never achieved.

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Institutions Responding "Yes" to the Question (in the Shaw Study): *Is your institution currently offering to college undergraduates a reading improvement program (either separately or with another course or program)?*

ALABAMA

Miles College
Tuskegee Institute

ARKANSAS

Arkansas A. & M. College
Henderson State Teachers College
Hendrix College
Philander Smith College
University of Arkansas

CALIFORNIA

Golden Gate College
Chaffey College
College of the Sequoias
Contra Costa College
Diablo Valley College
El Camino College
Fresno State College
Los Angeles City College
Los Angeles State College
Los Angeles Harbor College
Loyola University
Modesto Junior College
Monterey Peninsula College
Mount San Antonio Junior College
Napa College
Orange Coast College
Pacific Union College
San Bernardino Valley College
San Francisco State College
Santa Rosa Junior College
Stanford University
University of Southern California
Ventura College

COLORADO

Colorado State College of Education
Colorado State University
Colorado Women's College
Mesa College
University of Denver

CONNECTICUT

Central Connecticut State College
Trinity College
University of Bridgeport
Yale University

DELAWARE

University of Delaware
Delaware State College

DISTRICT OF COLUMBIA

(Washington)
Georgetown University
George Washington University
Howard College
Howard University

FLORIDA

Florida State University
University of Florida
University of Miami
University of Tampa

GEORGIA

Mercer University
Savannah State College
University of Georgia

IDAHO

Northwest Nazarene College
University of Idaho

ILLINOIS

Bradley University
Concordia Teachers College
De Paul University
Eastern Illinois University
Evening College
Illinois State Normal University
Loyola University
MacMurray College
Northern Illinois University
Rockford College
Southern Illinois University
University of Chicago
University of Illinois

INDIANA

Ball State Teachers College
Indiana State Teachers College
Indiana University
Purdue University

IOWA

Iowa State Teachers College
Luther College
St. Ambrose College
State University of Iowa

KANSAS

Fort Hays State College
Kansas State Teachers College
St. John's College
University of Kansas
University of Wichita
Washburn University of Topeka

KENTUCKY

Nazareth College
University of Kentucky

LOUISIANA

Louisiana State University
Southern University
University of Southwestern Louisiana

MARYLAND

Loyola College
Morgan State College
University of Maryland
Western Maryland College
Woodstock College

MASSACHUSETTS

Boston College
Boston University
Clark University
College of the Holy Cross
Harvard University
Mt. Holyoke College
Suffolk University
Tufts University
University of Massachusetts
Worcester Polytechnic Institute
Worcester Junior College

MICHIGAN

Albion College
Central Michigan College of Education
Eastern Michigan University
Grand Rapids Junior College
Hope College
Madonna College
Northern Michigan College
University of Detroit
University of Michigan
Western Michigan University

MINNESOTA

Augsburg College
Bemidji State Teachers College
Carleton College
Concordia College
Mankato State Teachers College
Moorhead State Teachers College
St. Cloud State College
St. Mary's College
St. Scholastica College
University of Minnesota

MISSISSIPPI

Hinds Junior College
Jackson State College
Mississippi Southern College

MISSOURI

Northwest Missouri State College
Southwest Baptist College
Southwest Missouri State College
Stephens College
University of Kansas City

MONTANA

Eastern Montana College of Education
Montana State College

NEBRASKA

University of Omaha
University of Nebraska
Wayne State Teachers College

NEW HAMPSHIRE

Dartmouth College
University of New Hampshire

NEW JERSEY

Glassboro State Teachers College
Montclair State Teachers College
Newark College of Engineering
Patterson State College
Princeton University
Seton Hall University

NEW MEXICO

New Mexico Highlands University
New Mexico State University
University of New Mexico

NEW YORK

Adelphi College
Brooklyn College
City College of New York
Columbia University
Cornell University
Cortland State College of Education
Fordham University—downtown
Fordham University—uptown
Hofstra College
Iona College
Manhattan College
New York University
Pace College
Queens College
Siena College
St. Francis College
St. Joseph's College
Syracuse University
University of Buffalo
University of Rochester
Vassar College

NORTH CAROLINA

Agricultural and Technical College
Appalachian State Teachers College
Atlantic Christian College
Davidson College
Duke University
Lenoir Rhyne College
North Carolina State College

NORTH DAKOTA

Minot State Teachers College

OHIO

Antioch College
Baldwin-Wallace College
Bowling Green State University
Case Institute of Technology
Heidelberg College
John Carroll University
Oberlin College
Ohio State University
Ohio University
Ohio Wesleyan University
University of Akron
University of Cincinnati

Western Reserve University
Wittenburg University

OKLAHOMA

Central State College
Eastern Oklahoma A. & M.
Oklahoma College for Women
Southeastern State College
Southwestern State College
University of Oklahoma

OREGON

Oregon State College
University of Oregon

PENNSYLVANIA

Allegheny College
Beaver College
Bucknell University
Carnegie Institute of Technology
College Misericordia
Drexel Institute of Technology
Franklin and Marshall College
Gannon College
Gettysburg College
Lafayette College
La Salle College
Lebanon Valley College
Lehigh University
Millersville State Teachers College
Pennsylvania State University
Temple University
University of Pennsylvania
University of Pittsburgh
West Chester State College

SOUTH DAKOTA

Northern State Teachers College
South Dakota State College of
Agriculture and Mechanic Arts
University of South Dakota

TEXAS

Abilene Christian College
Amarillo College
Baylor University

Lee College
McMurry College
Pan American College
San Antonio College
Southern Methodist University
Southwest Texas State College
Texas A. & M. College
Texas Christian University
University of Dallas
University of Houston
University of Texas

TENNESSEE

Tennessee A. & I. State University
Union University
East Texas State College
Houston-Tillotson College
Howard Junior College
Incarnate Word College

UTAH

Brigham Young University
Utah State University
University of Utah
Weber College

VERMONT

Johnson Teacher College

VIRGINIA

Lynchburg College
University of Virginia

WASHINGTON

Clarke College
Pacific Lutheran College

WEST VIRGINIA

West Virginia University

WISCONSIN

Marquette University
Ripon College

WYOMING

Casper Junior College
University of Wyoming

The Relationships Between Interest and Reading Rate and Between Interest and Reading Comprehension

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Introduction

A person's interest in what he is reading may determine the way in which he reads. Reading specialists often assume that individuals read more rapidly and better understood material which is highly interesting to them. On the other hand, some specialists have suggested that while comprehension remains high for interesting material, that readers tend to slow down when they are reading material of interest to them. There has been little experimental work in this area. Bernstein (1) found that when articles were altered to make them less interesting, they were read with poorer comprehension than the unaltered articles. It is difficult to evaluate whether or not the lowering of comprehension was due to the lowering of interest or merely the type of alteration used. No other clear-cut studies of the relationship of rate and comprehension to reading interest were found in a brief survey of the literature. Yet, the question is important in many aspects of reading training and testing. The present study attempts to provide some experimental evidence about these relationships with reference to simple narrative material.

Subjects

One hundred students, enrolled at the University of Houston in a freshman course in developmental reading and study skills, were used as the original sample of this study. From these, one hundred, fifty-one students were selected for the final analysis on the basis of the criteria to be described later.

Test Materials

In order to prevent the difficulty of the material from being a variable in determining the rate and comprehension of reading,

two relatively simple articles were selected from the junior high school level book, *SRA Better Reading Book 3*. Their styles were similar. In addition to twenty multiple choice items used in the book to measure comprehension, thirteen additional completion items were constructed for each article, using similar item types for each article. This was done so that a measure of recall of information could be obtained as well as a measure of recognition. The text of the article, the completion questions, and the multiple-choice items were reproduced so that pictures in the book would not influence interest and so that the completion items would precede the multiple choice items without cuing any of them.

Procedure

Subjects were asked to read the article at their normal rate and then to answer the test questions that followed. The selections were presented to the subjects in random order so that each article was read first by one half of the group. A record was made of the reading rate and the comprehension (number of items correct) on the articles. One week later, the students received the same instructions and read the other article and, again, the reading rate and comprehension measures were recorded. One week after the reading of the second article, students were asked to indicate their interest level for the two articles. A mimeographed title and summary of each article was presented for their review and subjects were asked to indicate their degree of interest by placing a check mark in the appropriate space on a six point scale. From the one hundred cases, two groups of seventeen cases each were selected for analysis. One group showed greater interest in article # 1 than in article # 2. The other group showed greater interest in article # 2 than in article # 1. On the basis of the original one hundred and an additional similar sample, making a total of two hundred cases, the raw score of words per minute and the raw score of number of items right were converted to a standard score with the characteristics of a T-score (mean = 50, S.D. = 10), except that the distribution of scores retained its original shape rather than being normalized. A difference score was obtained by subtracting the standard score for the less interesting article, regardless of which article it was, from the comparable standard score on the more interesting article. The distribution of the

N = 34
 $\bar{D} = -2.09$
 $S_d = 6.51$
Mdn. = 0

								X	X										
			X		X	X	X	X	X										
		X		X	X	X	X	X	X										
	X	X	X	X	X	X	X	X	X										
	X	X	X	X	X	X	X	X	X										
X	X	X	X	X	X	X	X	X	X	X									

-19 -16 -13 -10 -7 -4 -1 2 5 8 11 14 17
-17 -14 -11 -8 -5 -2 +1 4 7 10 13 16 19

129

Results

In neither case was it possible to reject this null hypothesis at the .05 level. Thus, the results of this study suggest that interest does not significantly influence reading rate or comprehension when reading relatively simple, narrative style articles.

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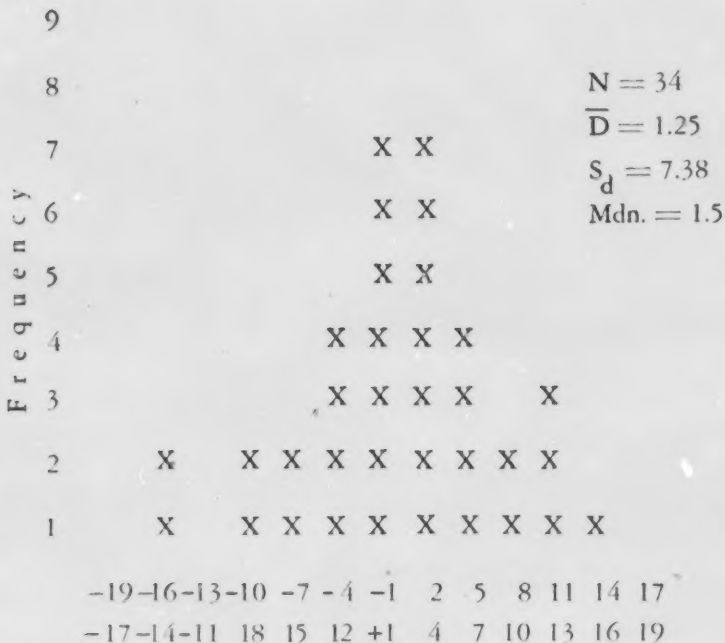


FIGURE 2
DIFFERENCE SCORE UNITS FOR COMPREHENSION

A Portrait of College and Adult Readers in an Urban Area

Arthur S. McDonald and Robert C. Craig

Marquette University

Reports on the amount of reading performed by adults have alternated between optimism and gloom. For instance, a recent quotation in the press reports that, because of the influence of television, people are reading more and better books than ever before. Many writers have used figures for magazine and book circulation as an indication of reading in America. Thus, they have concluded from the steadily increasing number of books and magazines sold in the U. S. that the number of people who read is similarly increasing.

On the other hand, research studies conducted in various parts of the country during the last twenty years indicate that the *proportion* of the population claiming to read books represents a minority of the people and has remained approximately the same. Heckscher takes as his starting generalization the proposition that "America is not a book-reading country" (2:39). Much research about adult reading has been confined to asking persons whether they had read a book (or magazine) in a given period of time. Guinzburg has asserted the need for more comprehensive research pointing out that the book covered by a "yes" answer might be "absolute junk" or it might be a practical manual of some sort (2:30).

This paper reports the results of an investigation of the claimed use of certain communications media by college students and adults in an urban area, centering principally on claimed reading of books and magazines. The study sought to ascertain:

- 1) The features most valued in all the communications media
- 2) The number and titles of books read
- 3) The number and titles of magazines read
- 4) Factors related to reading
- 5) Amount of reading books and magazines in a special category (hereafter to be described)
- 6) Factors related to reading material in this category

The adult sample was secured by following the procedure described below. Addresses listed in the Milwaukee City Directory were stratified into 9 areas. These 9 areas represent a regrouping of 19 community areas in the City of Milwaukee which in turn are combinations of census tracts reasonably similar in residential characteristics, property valuation, and family income.* One address in each 300 addresses was selected by random procedure. Unless a name was unmistakably feminine, each alternate envelope was addressed to Mrs. ———. This selection process gave a total of 657 addresses representing 1/3 of 1% coverage of the City of Milwaukee.

Each person so selected was mailed a combination checklist and free-response questionnaire together with a letter explaining the purpose of the study. Items on the checklist were chosen to represent several categories of books and magazines. This printed questionnaire was a refinement of a form which had been tried out in an earlier pilot study. All questionnaires were coded. A second mailing was made to those who failed to respond to the first letter.

This same questionnaire was also administered to 300 Marquette University students enrolled in sections of required sophomore and junior subjects in the Liberal Arts College. It is believed that the method of their selection secured a reasonably representative sample of Liberal Arts sophomores and juniors. Questionnaires were completed during class time under conditions insuring complete anonymity.

Of the 657 persons selected in the adult sample, 46 had moved without leaving any forwarding address and 4 were deceased. Three-hundred-three replies were received (which comprise a 50% response from the 607 persons receiving the questionnaire).

In order to ascertain the characteristics of the non-respondents, a randomly selected group, balanced according to the number of non-respondents in each area, was interviewed by telephone. Fifty-three per cent (164) of the non-respondents were so interviewed. This sampling indicated that the non-respondents were mainly non-readers. (Only 13% of the telephone sample said they had read a book in the past year and 44% had read one or more magazines.)

* These areas have been established and kept current by *The Milwaukee Journal* for its annual *Consumer Analysis*.

The majority of the respondents were married and had children and/or other adults living with them. The age grouping was fairly evenly distributed. Their educational levels were as follows:

Less than 8th grade	5%
8th-11th grade	35%
12th-13th grade	38%
14th-15th grade	9%
16th grade and up	13%

The grade levels of the non-respondents tapped by our telephone interviews fell mostly into the first two categories. Only 1% of those telephoned had gone to college; and 23% had completed high school. Therefore, the respondent sample contains a higher proportion of the upper educational levels.

Men in the sample reported that they would miss most the following features of the communications media (defined as newspapers, magazines, books, radio and TV):

1. local news (listed by 87%)
2. sports news and events (46%)
3. foreign news (41%)
4. business news; editorials; musical programs (all listed by 19%)

Women listed the following as most valued features of the communications media:

1. local news (88%)
2. foreign news (49%)
3. musical programs (28%)
4. editorials (23%)
5. variety shows; sports news and events (both 18%)

In contrast, the college students mentioned the following as most important services of the communications media:

Men

1. local news (60%)
2. foreign news (60%)
3. sports news and events (53%)
4. musical programs (28%)
5. business news; editorials (both 18%)

Women

1. advertisements (90%)

2. foreign news (75%)
3. local news (73%)
4. musical programs (47%)
5. women's news (30%)

An analysis of book titles listed by respondents indicates that they do not utilize reading to secure these services. For instance, the reported high interest in foreign affairs is not reflected in book titles in this category. In this connection, it is instructive to recall the studies of *reported* versus *actual* use of media (1).

Ninety-eight per cent of those responding in the adult sample reported reading one or more newspapers regularly. Fifty-nine per cent claimed to have read at least one book in the previous year while 94% reported magazine reading. The telephone interview study indicated that the non-respondents read considerably less (as reported above). Adjusting for this fact of low readership among the non-respondents, approximately 40% of the entire sample claimed to have read at least one book in the previous year; 70% were magazine readers; and 95% read newspapers. These findings are in reasonable congruence with those reported in other surveys edited by Asheim and Lazarsfeld and Kendall. (1:8; 3:425-438, 451 ff.)

Of those who reported reading books:

- 27% had read only one book.
- 47% had read 2-5 books.
- 23% had read 6-10 books.
- 3% had read more than 10 books.

Seventy-six per cent of the college students claimed to have read one or more books in the previous year. Seventy-two per cent of the college males and 83% of the females reported reading books. (In the administration of the questionnaire, students were instructed to report leisure-time and recreation reading *only*.) Of the college students who reported reading one or more books:

- 23% listed only one book.
- 61% listed 2-5 books.
- 16% listed more than 5 books.

Table 1 shows the book titles reported by both samples.

TABLE I
Per Cent of Adult and College Readers Reporting Specific Book Titles

<i>Title</i>	ADULTS			COLLEGE		
	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
1. Advise and Consent	4	4	4	7	10	8
2. Aku Aku	4	5	4	7	6	7
3. Anatomy of a Murder	36	38	38	31	37	34
4. Arizona Clan	3	0	2	0	0	0
5. Battle Cry	19	14	17	13	12	13
6. Bonanza Doubloons*	0	1	06	0	0	0
7. Bramble Bush	4	12	8	7	4	6
8. By Love Possessed	2	8	6	3	7	5
9. Case of the Footloose Doll	2	04	3	1	0	1
10. Counterfeit Traitor	0	1	06	2	1	2
11. Doctor Zhivago	11	14	12	18	32	24
12. Endurance	1	0	06	1	2	1
13. Exodus	16	14	15	16	30	22
14. FBI Story	23	19	22	14	10	12
15. From the Terrace	1	9	6	2	2	2
16. Girl Beneath the Lion	0	1	06	1	0	03
17. God's Little Acre	23	23	23	12	6	9
18. Great Imposter	4	6	5	0	2	1
19. I, the Jury	13	10	12	8	2	6
20. Lady Chatterley's Lover (complete)	13	23	18	20	5	14
21. Lolita	7	7	8	6	1	4
22. Masters of Deceit	8	6	8	9	8	9
23. Mine Enemy Grows Older	11	13	12	8	3	6
24. Missouri Gunman*	3	1	2	0	0	0
25. Night to Remember	8	10	9	6	13	9
26. Nun's Story	23	60	41	14	54	30
27. Only in America	12	7	10	6	10	8
28. Peyton Place	30	48	39	25	16	22
29. Status Seekers	4	1	3	7	6	7
30. Ten North Frederick	13	13	12	6	19	11
31. Three Friends in Rome*	2	0	1	0	0	0
32. Triple Spy*	0	0	0	0	0	0
33. Best of Everything	11	7	9	6	14	9
34. Ugly American	8	13	11	14	25	18
35. War Lover	2	2	2	1	0	03
36. Other titles	15	16	15	10	9	10

Previous researchers had pointed out the tendency of questionnaire respondents to overstate the actual amount of reading performed. As one means of estimating this tendency, non-existent book titles were included on the questionnaire. Three per cent of the adult respondents listed these titles; none of the college students did so. In light of this fact and in view of the requirement imposed on the respondent to name titles rather than merely state number of books he had read in a given period, it may be concluded that, for these samples, overstatement is modest.

* Non-existent book title

In order to determine the extent to which respondents were inhibited from giving book and magazine titles other than those listed on the questionnaire, a 25% sample of those who had claimed to read one or more books was interviewed by telephone. These people were asked to name books and magazines which they had read in the previous year. Only five titles which had not been previously listed were named. (These readers had originally listed a total of 75 books.)

Books listed more than once in the free response section of the questionnaire were as follows:

Battle Report
Blackboard Jungle
Crack in the Picture Window
Diary of Anne Frank
Dr. Einstein and the Universe
Crisis of the Old Order
Folk Medicine
Insolent Chariots
The Last Laugh

Microbe Hunters
Mrs. Arris Goes to New York
Moon and Sixpence
On the Beach
Please Don't Eat the Daisies
Power of Positive Thinking
Rebecca
The Tontine

The most common reason given by adults for not reading was "too busy" (63%). The next most common reason was "other interests" (25%). Approximately 5% of both the questionnaire and the telephone interview groups indicated that they did not like to read, or that books were not available to them. Even on an unsigned questionnaire, it appears that the majority of adults do not like to admit that they prefer other forms of diversion than reading. (Note, however, that the services of the communication media which these people listed as being most important to them are all rendered by newspapers, radio and television. Surveys have shown, also, that the average city dweller watches television about 15 hours a week.) The college students gave "too busy" as the main reason (82%) with the other answers following about the same pattern as the adults. Analysis of the responses indicated that educational level was significantly related to the reason advanced for not performing more reading. In the adult sample, a greater proportion of those with college degrees said that they were too busy to read more and a smaller proportion gave "other interests" as a reason. Age, sex, and marital status were not significant factors.

Data concerning educational level, marital status, age, number of dependents and place of residence were secured in this investigation. A statistical analysis indicated that educational level,

marital status, and sex are factors significantly related to book reading. In general, these findings are consistent with those reported by Asheim (1:3-24; 3:451-456).

Educational level is the most significant single factor related to book reading. The percentage of those claiming to have read at least one book increases steadily with educational level, as shown below:

Less than 8 years of school	20%
8-11 years of school	48%
12-13 years of school	62%
14-15 years of school	73%
16 and more years of school	76%

Fewer married people read books (31% of the entire sample) than single persons (46%). More women (42%) report reading books than men (32%).

It will be recalled that 70% of the sample reported reading one or more magazines in the previous year. The mean number of different magazine titles read per person for the entire sample was 3.6. Magazine readership declined steadily with age: for those 30 and below, mean number of magazines was 3.8; for age 70 and above, the mean number was 1.2. In contrast, the mean number of magazine titles read also showed a steady increase with educational level as shown below:

Less than 8 years	1.3 magazines
8-11 years	2.5 magazines
12-13 years	4.1 magazines
14-15 years	6.4 magazines
16 and more years	6.0 magazines

Table II gives the magazine titles listed by the adult and college groups.

TABLE II
Per Cent of Adult and College Readers Reporting Specific Magazine Titles

<i>Title</i>	ADULTS			COLLEGE		
	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
1. Argosy	18	4	13	24	2	15
2. Better Homes and Gardens	32	53	40	10	54	28
3. Business Week	28	16	23	33	13	28
4. Confidential	5	7	6	4	0	2
5. Dell Comics	2	2	2	10	9	9
6. Esquire	10	7	9	21	7	15
7. Harpers	06	7	3	10	25	16
8. Hi-Life	1	0	07	1	0	03
9. Jem	2	0	1	5	0	3
10. Ladies Home Journal	12	59	30	3	70	30
11. Life	59	61	60	81	86	83
12. Male	6	09	4	4	0	3
13. McCalls	12	47	22	5	72	32
14. MR.	06	0	04	0	0	0
15. Man	6	2	4	4	0	3
16. Modern Mystery	2	09	1	0	0	0
17. New Yorker	11	13	12	30	43	36
18. Photoplay	4	9	6	3	11	6
19. Nus	0	0	0	0	0	0
20. Official Detective	3	6	4	2	2	2
21. Playboy	12	4	9	46	2	28
22. Popular Mechanics	25	19	23	28	3	18
23. Reader's Digest	68	65	67	49	68	57
24. Real Western	2	09	1	1	0	03
25. Satan	0	0	0	1	0	1
26. Sat. Eve. Post	49	50	50	63	83	22
27. Scamp	06	0	04	2	0	1
28. Science Fiction	6	2	4	3	3	3
29. She	06	0	04	0	0	0
30. Sports Afield	32	7	22	32	5	21
31. Stag	6	01	4	7	1	5
32. Sun Bathing	1	0	07	05	0	03
33. Time	34	39	32	71	76	73
34. True	20	5	14	20	2	12
35. True Romance	2	4	3	2	2	2
36. True Story	2	7	4	1	2	1
37. TV Guide	12	25	18	21	27	23
38. "21"	0	0	0	1	0	03
39. U.S. Camera	4	03	3	8	0	5
40. Other titles	23	21	27	30	30	30

Our questionnaire also sought to investigate the extent of reading of books and magazines which have been challenged as obscene in court trials or which have been introduced by defense attorneys to show community standards of reading. (This has been done in trials of book dealers charged with possession of obscene literature. In so doing, defense attorneys are relying on the doctrine of community standards of acceptance promulgated by the U. S. Supreme Court.) In the view of many persons, these books and magazines (which we have termed "category X")

are on the margin of legal acceptability. (Books and magazines in this category which were among those on the check list were not designated in any manner.)

Table III shows the claimed reading of titles in Category X.

TABLE III

Percentage of Total Reading Formed by Category X

<i>Sample</i>	<i>Books</i>		<i>Magazines</i>	
	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>
Adults	25%	30%	8%	2%
College	25%	17%	14%	0.4%

Factors which might be related to reading books and magazines falling into Category X were investigated. Age, sex, marital status, and educational level are all significantly related to amount of reading reported in this category.

With respect to the adult sample, males read fewer books but more magazines in this category than did women. Married people read more books in this category. The percentage of reading formed by X Category books and magazines shows a steady decline with age. It is at its peak in the age group under 30. Educational level reaches significance principally because fewer non-high school graduates report Category X reading.

As may be noted in Table III, girls in the college sample reported a significantly smaller proportion of their reading in this category than college males. The college sample, of course, is entirely comprised of persons within the age group in which this reading was found to be at its peak.

For the area covered by the study, reading of all kinds occupied a relatively small proportion of the attention devoted by adults to the various communications media. Ninety-five out of 100 read some portion of at least one newspaper. Seven in ten of the adults read one or more magazines during the period covered by the study. The typical magazine reader read four different magazine titles and was a person under 30 with at least a high school education.

Book readers formed a minority of the population. Only two in five adults reported reading at least one book in the preceding year. The typical book reader has at least some college education,

is more likely to be single and feminine, and devotes most of his reading to best-seller type books. The book reader is also a reader of magazines and newspapers. (Asheim (1) has noted that this fact helps to explain the apparent discrepancy between the great number of publications and the small number of actual readers.) Furthermore, he is more interested in what Schramm (3) has termed "delayed-reward" features of the communications media than is the non-book reader.

About one-fourth of the books and 5% of the magazines reported read fell into our Category X. The peak of reading both books and magazines in this category was below age 30. With respect to the Category X books, the reader was most likely to be married and feminine. With respect to the magazines, the reader was more likely to be single and male.

The same proportion of college students reported leisure time reading as was the case with college graduates in the adult population.

The percentage of the adult population in this investigation which reported book and magazine reading is about the same as those reported in 1948 studies (3). Therefore, it may be concluded that television has neither increased nor decreased the proportion of adults who read.

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Research in Reading at the University of Florida, 1950-60

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This is an attempt to describe the graduate research in reading conducted at the University of Florida during the period from 1950 to 1960 inclusive. Included in this review will be some fifteen master's and doctoral theses and a number of periodical research articles. Bibliographical research, which has resulted in a number of publications by the staff of the Reading Laboratory and Clinic, has been omitted here in order to stress the more active types of research done in the field. For the sake of convenience in discussing them, the research studies have been grouped according to the educational level for which they were pertinent. These groupings include the primary levels, the elementary school, secondary and college levels, as well as those dealing with clinical or remedial reading cases.

Primary

It is interesting to note how these studies in primary reading paralleled or anticipated the general educational concern with such problems as new tools, grouping, and individualizing reading. For example, Veda Byrd (2) explored the values of kodachrome slides with a group of seven physically handicapped third grade children. A one-semester program of reinforcement by these visual aids resulted in some marked gains in reading ability. Over half of the physically handicapped children showed greater gain in work-type reading skills, while more than three-quarters of them showed greater gains in reading comprehension than did a matched control group. In Byrd's judgment, the slides were extremely valuable in teaching these cerebral palsied and post-polio children. Vera Haynie (5) compared the values of homogenous versus heterogenous grouping among entering first graders. Like so many other grouping experiments, she found no significant differences in three tests of reading ability at the end of the first grade. Again, like so many grouping experiments, what were probably the most significant outcomes of the experi-

ment could not be tested by the usual devices. A study by Louise G. Johnson (6) emphasizes again the importance of the multiplicity of causes of reading retardation. Her descriptive study emphasizes an approach to reading failure with which most of us are still laboring. She found, for example, that physical factors were significant in forty per cent of her children and that mental ability entered into more than half of their reading difficulties. At the same time, emotional disturbances, immaturity, and home environment also played significant parts in certain cases.

A 1950 study by Edna F. Reeder (12) compared a basal reading program with one based on individual interests. Like so many other later studies of individualized reading among primary children, she found no significant difference in gains on reading tests of the experimental and control groups; but, also, like so many reporting on individualized reading experiments, she claimed to find greater gains in personal satisfaction, sharing, social participation, breadth of reading, and freedom to progress at one's own learning rate. The latest of the graduate studies dealing with primary children was one conducted by Iver L. Moe (9), who studied the values of auditory comprehension as a predictor of reading success in the first three grades. He used the auditory comprehension portion of a reading scale standardized for individual diagnostic purposes in the Reading Laboratory and Clinic. He found this measure a most effective predictor of reading performances in the first three grades. Moreover, this measure, when combined with mental age, gave a better prediction than either single test alone. In fact, he concluded that a test of auditory comprehension is superior to several common reading readiness tests in predicting ultimate reading performances, particularly in the first grade.

The present writer and several students made an intensive study of the sentence structure and vocabulary load of a relatively large number of primary reading materials early in 1953. (14) This study resulted in a primary readability formula which has received wide use and attention in primary reading circles. The Spache Readability Formula, as it is called, has been employed by writers, editors, text book authors, and publishers as an objective aid to the evaluation of primary reading materials. This, in the opinion of the present writer, is its most proper use. He feels strongly that readability formulas should be applied to

material which has already been prepared and that their use as a constant guide to the rewriting of creative materials for children is not warranted.

Elementary Grades

Only three graduate studies of elementary reading were made during this decade. The earliest of these, by Doris R. Dasher (3), compared sixth grade experimental and control groups for the effects upon reading and spelling of instruction in practice of typewriting. The experimental class received thirty minutes of typing training each day for one semester. Miss Dasher's results indicate that this group showed superior gains in spelling, paragraph meaning, and word meaning, although these differences were not entirely statistically significant. She adds also the significant point that these children learned to type and enjoy typing. A few years later Elaine F. Davenport (4) contrasted the use of local resources versus the usual basal or text book type of reading program in the sixth grade. She found that an experimental group, characterized by a rather high degree of negativism toward reading, showed surprisingly significant gains both in reading comprehension and study skills as a result of the experimental training. Mariano C. Pascual (11) attempted a defense of the use of folktales in elementary school readers. In addition to offering strong arguments for this type of material, Pascual brought together a collection of thirty such folktales and suggestions for their use in Philippine textbooks.

Secondary School

The only secondary school research in reading during this decade was that by Mary L. Zellner (24), who studied the interests of her high school pupils in reading and the extent to which these might be modified by manipulation of the local environment. Her descriptive study concludes with specific suggestions for improving the local facilities which might contribute to high school reading.

College

Despite the fact that the major part of the time of the staff of the Reading Laboratory and Clinic is devoted to work with college students, the clinicians have not found the time to do a great deal of research in reading at this particular level. A

doctoral dissertation by Harvey Alpert (1) studied relationships among empathy, projection, literary comprehension, and non-literary comprehension among college students. His results indicate that females of college age are significantly more emphatic than males although empathy is not related to reading ability in either literary or non-literary materials. Surprisingly enough, he found no such differences in projection nor did he find that projection was related to reading comprehension in literary or non-literary materials among males. However, females with a high degree of projection read literary materials with greater comprehension. Those with the least degree of projection read non-literary materials with greater comprehension. In other words, Alpert's study may be summarized as indicating that in reading literary materials, the tendency to become emotionally involved or identified with the characters and events results in superior comprehension. In non-literary materials the reverse is true and we find that an objective attitude is preferable for comprehension in such materials. The second study at the college level was published just this fall. (22) It was an attempt to compare the values of three college level remedial reading procedures. Students coming voluntarily to the reading Clinic for help were assigned randomly to a textbook-oriented group course, a machine-oriented group course, or to a planned, individualized laboratory program. The three instructional procedures were found to be equally effective in terms of the common criteria of rate of reading, vocabulary, and reading comprehension. However, the individualized approach was significantly more effective in producing changes in reading habits, attitudes, and, presumably, practices. The three staff members who contributed to this study concluded that the individualized, laboratory approach seemed to be more productive of change in future reading ability, effectiveness of study and, possibly, of academic success.

Clinical Studies

The staff of the Reading Laboratory and Clinic has long been interested in the use of the *Rosenzweig Picture Frustration Test* as a tool in reading diagnosis. The first study of this instrument was that done by Donald H. Parker (10) who is now achieving national acclaim as the author of the *SRA Reading Laboratory*. The results of Parker's study of the relationship between reading retardation and the components of personality measured by the

Rosenzweig Test were inconclusive. He did not find that the degree of retardation was related significantly to any of the sub-scores. In all likelihood, however, this study was inconclusive because it attempted to force the relationships between personality and degree of reading retardation into a linear correlation structure. In the writer's opinion, it is not likely that one would find that the number of months of retardation would be reflected to a marked degree in some one aspect of the child's personality structure.

Subsequent studies by the present writer utilizing this same personality instrument were more fruitful. (14, 15, 16, 17, 18, 19, 20, 21, 22) It was found, for example, that when measured by this test a large proportion of retarded readers exhibited a typically anti-social or personally aggressive attitude toward authority figures. This negativism or resistance to authority may, in many cases, make a strong contribution to the child's apparent reading failure. Other studies established a number of sub-test patterns or typical personality structures found among retarded readers. Among these are the hyperaggressive, the overly-adjustive, the withdrawn or asocial, the overanxious and several others. A parallel study of the patterns of test performances in the WISC tended to confirm this impression of resistance or negativism among retarded readers. A number of retarded readers showed intelligence test subtest scores which indicate not lack of potential or learning, but a degree of resistance to teacher and parent coercion.

Other clinical studies conducted by the writer include an intensive review of the "pros" and "cons" on the use of mechanical methods for improving reading. This study and another on the evaluation of eye movement photography, was reported at earlier meetings of this reading conference and need not be reviewed in detail here. Perhaps it is sufficient merely to point out that both of these approaches have very real and distinct values to contribute to the well developed diagnostic and remedial program. For example, when used with certain proper cautions regarding their true purposes, many reading machines can be shown to contribute not only mechanical impetus to rate training, but also to the psychological needs of certain types of remedial cases. Similarly, eye movement photography was shown to contribute not only an objective or mechanical type of diagnosis,

but also certain insights into the anxiety states and the visual conditions of the retarded reader.

A recent study by Douglas R. McKinley (7) continued the interest of the staff in the values of the *Rosenzweig Picture Frustration Test*. McKinley compared the maternal personality as measured by the Rosenzweig Test, the maternal prediction of a child's personality as measured by the test, and the child-rearing attitudes of mothers of normal readers, retarded readers, and suspected retarded but normal readers. He found no significant group differences among the mother groups in their attitudes towards family life and child-rearing. However, in predicting their children's personality, mothers of retarded and suspected retarded readers tended, first, to underestimate the intensity of sensitivity to other persons' behaviors (ego-defensiveness) and the need-persistence in their own children. At the same time, these mothers of retarded and suspected retarded readers overestimated their children's drives to help themselves or seek solutions. It was perhaps characteristic of these mothers of problem children that the error of their predictions reflected their own deviant patterns of adjustment. Thus we saw a definite tendency on the part of the mother to project her own abnormal pattern as being natural and normal for her own child.

Two doctoral dissertations during this decade concern themselves with an attempt to compare the values of four common methods of teaching reading. Mills' study (8) compared the effectiveness of the visual, phonic, kinesthetic, and combination methods of teaching word recognition in the second to fourth grades. He designed a Learning Methods Test, a series of fifteen minute teaching-testing sessions for this comparison. His results showed that the child's intelligence and the methods of instruction utilized were related in that the phonic method seemed poorest, the combination next, and the kinesthetic best for low intelligence groups. However, these methods were not significantly better than the visual or combination method for this low intelligence group. For children of average intelligence, Mills found the visual or combination methods better than the kinesthetic. For high intelligence groups, the visual was also better than the kinesthetic but in actuality any method was effective. Age of the children showed no influence on effectiveness of method.

Dr. Harold C. Rivkind (13) carried this same line of investigation a step further. He adapted the Learning Methods Test procedure to group administration in the second and third grades. Again he found no real superiority in the effectiveness in any one of the four methods of teaching reading. Surprisingly enough, he also found that differences in teacher experience, skill or training, or preference for method, did not apparently influence the learning rate of pupils under any one method. Like the Mills study, Rivkind found marked individual differences appearing among his children in terms of their learning response to different methods of teaching reading. These studies really establish the values of an objective, diagnostic approach to choice of method in teaching beginning reading or in attempting remedial work with individuals reading on primary levels.

One other clinical study was published during this decade although it deals with a study actually completed before the foundation of the Reading Laboratory and Clinic at the University of Florida. This was a study by Walker (23) of the operation of the Reading Clinic as it existed prior to the present administration. He described the machine oriented procedures of a typical evening reading clinic for university students. As might be expected, he found no significant gains even in speed of reading after a semester's training. One possible explanation of the inconclusiveness of this study lay in the fact that over half of the students admitted to the Clinic were handicapped by visual defects, a factor which was completely ignored in the training procedures. Like so many other studies of the machine approach to remedial reading, this study failed to prove any values because it also failed to relate the training procedures to the potential capacity of the trainees. Despite an earnest attempt, the author was utterly unable to prove any of the recognized values of machine training in a remedial reading course.

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1960 Review of Research on College and Non-College Adult Reading

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As in the past, the great bulk of reports or articles involved in the present review are ones which appeared in professional journals since the time of preparation of the last review (3). Almost the only exceptions to the journal sources are those reports pertinent for purposes of this review which appeared in the Yearbook of the last Conference (13). A somewhat greater number of pertinent reports was found this time, as compared with last year. A slightly greater number of broad headings or areas was also found necessary to encompass the various reports. As in previous years, the area or topic headings found in the following pages tend to be arbitrary, general, and somewhat inclusive, with convenience perhaps being the best reason for including treatment of a few reports under certain headings.

Reading Programs (Reports, Surveys and Analyses)

Results of a very intensive survey of adult reading improvement programs in military, government, and business agencies were reported by Acker (1). One-hundred-seventy-seven of twelve-hundred agencies contacted at some point in Acker's survey had reading programs and participated in the survey. Because of procedures used in contacting the agencies, it was felt that practically all of the agencies having reading programs contributed to the study. A lengthy summary of information obtained was presented. (Space limitations preclude presenting much of the information here; but persons working in the areas involved should examine carefully the information presented by Acker.) Some of the highlights presented in Acker's report were as follows:

1. Increase in speed, comprehension, and vocabulary were the most frequently stated objectives, with major emphasis being placed on mechanics of reading.
2. The average program entailed 25 hours, with 20 hours being considered a minimum and 31 hours an ideal length for a program.

3. College training had been received by practically all instructors in programs. Two-thirds had received some kind of training in the Education field, with less than one-third having received more than nine semester hours in reading. (The number or proportion having had no actual course work or training in reading was not indicated.)
4. Tachistoscopes, reading rate controllers, and training films, were found to be the most commonly used mechanical devices (in the order named); but textbooks and workbooks were emphasized more than any single type of equipment or material. The combined use of non-mechanical and mechanical equipment or materials was reported to be the most effective way to motivate the participants. Respondents regarded the reading rate controller as the most valuable instrument; tachistoscopes and training films were considered helpful although not as valuable as controllers.
5. At least one standardized test was used by practically all agencies; and approximately two-thirds of the agencies used locally developed tests also. Personality and intelligence tests were considered of little value; and the value of vision testing devices and the ophthalmograph was debated.
6. Improvement, as determined by test results, was reported in practically all cases.

Trends noted by Acker were an increased use of non-mechanical materials, a decrease in proportion of time spent in using (but not in quantity of) mechanical equipment, and an increase in development of new reading materials and adult reading tests.

A number of reports dealt with reading programs or some aspect of reading or study skills programs. A considerable number of reports included some description of evaluations of effectiveness of programs. Several specific university programs were described by Byrne, Snively, and Pauk (8). Descriptions of other specific programs were also included in a number of other reports, although the main function of such reports was not one of description. Fedde and Kover (22) called attention to the increased frequency with which study skills offices, or their counterparts, have become informal screening or referral centers for adjustment or personality problems, even though counseling service agencies are available. They attributed the attraction

of non-counseling service agencies to students with personality problems to the non-official status of such agencies and the side diffusion of information about such agencies among the student body.

Programs, or results of programs, were evaluated in a variety of ways (with some reports of programs failing to include indications of whether or not actual gains in reading skills were really achieved). Comparison of pretest and posttest scores was the chief method of evaluation used in a number of programs. Scores were reported in a variety of ways; and statistical tests of results were applied to results in some programs but not in others. Fauls (21) found that speed scores (obtained with the *Harvard Reading Test*) increased significantly for the college students who had participated in a six-weeks reading improvement course, but he noted that "speed and comprehension scores had no correlation between them" (21:3376). Legere and Tracey (45) used "locally developed reading materials" and the *Cooperative English Test*, C2, to measure reading gains in a program conducted at the U. S. Army Security Agency Training Center and School, Fort Devens, Massachusetts. Test results were presented in terms of median scores. End-of-program scores were higher than scores at the beginning. Statistical tests were not applied to results. Tuckey (72) reported some results obtained over a period of seven years in a sixteen-weeks program at Purdue University. He presented beginning and ending rate (words per minute) and comprehension ("percentage") scores, based on the Reading Test Selections in Cosper and Griffin's *Toward Better Reading Skills*, for some 700 students under twenty-five years of age and 234 students of twenty-five years of age or over. Ending comprehension scores were higher than beginning comprehension scores; and ending rate scores were considerably higher than beginning rate scores.

Witty, Stolarz, and Cooper (74) used the *Iowa Silent Reading Test*, Advanced, for a six-weeks program (meeting once a week for a two-hour period) with 24 policemen of an average age of 35 and who scored below the fiftieth percentile for college freshmen on the Iowa test. Initial and final scores were reported in terms of standard scores and percentile ranks. Terminal scores of both types were higher than were beginning scores; but no test score analyses were made.

Ninety-eight percent of the respondents in Acker's survey evaluated reading program results in some way. Standardized test results indicated that improvement had been attained in almost all cases (1).

Academic competence or achievement was viewed as an indication of effectiveness of programs in some instances. De Weese (16) found more academic failures or near-failures occurring in a remedial reading group and in a control group than in a counseled group of beginning freshmen who scored below the thirty-fourth percentile on the *Ohio Psychological Examination*. However, differences between the counseled group and the remedial reading group were not significant, nor were the differences in grade-point-averages which favored the counseled group. The remedial reading group improved its academic potential, as measured by the *Ohio Psychological Examination*, significantly over the counseled group. None of the groups gained significantly in personal adjustment, as measured by the *MMPI*. Englander (19) devised an instrument for measuring students' attitudes toward reading and other subjects and administered the instrument to 46 college students before and after a one-semester improvement course which met twice a week. Favorable changes in attitudes were found in "self-concept" in reading and in studying and in "attitudes toward reading." Significant negative changes occurred relative to "attitudes toward school." No mention was made in Englander's report of any changes in reading skills. When a precourse comparison of the voluntary reading program participants was made with a random group of college students, significant differences were found relative to "plans for future education," "self-concepts in reading and studying," "attitude toward reading," and "reading preferences."

Apparently no special attempt was made in the reported programs to obtain reactions of participants in the program, although some indications of reactions were given. Legere and Tracey (45) reported favorable reactions on the part of participants with respect to the worthwhileness or effectiveness of their reading program; and Acker (1) found in his survey that participants of adult programs "registered overwhelming satisfaction with the programs in which they had participated and gave willing recommendations for the program." Acker's respondents also indicated that they felt a great improvement in reading habits.

Supervisors of reading programs or of participants also felt that reading skills and habits of the participants had improved.

Only one report of attempts to study permanence of reading program gains was found. Fauls (21) found that *Harvard Reading Test* speed scores obtained by follow-up testing six months after the completion of a program were still significantly higher than corresponding scores at the beginning of the program.

Several reported studies involved comparisons of various methods of teaching reading or of attempting to effect improvement. Irvine (38) found no one of five experimental methods used to be superior to any other. Overall improvement in reading efficiency, particularly in reading rate, was reported; but there was doubt that significant improvements in basic comprehension and vocabulary had been attained. Tachistoscopic training produced significant rate improvement; but tachistoscopic training in addition to work with reading manuals or workbooks did not add significantly to the rate improvement attained with the use of manual or workbook materials alone. Mayhew and Weaver (51) compared reading skills gained under four different instructional methods. The methods studied involved *Harvard Reading Materials*, *SRA Better Reading Book 3*, *Harvard Reading Films*, and tachistoscopic work. Some of the materials were used separately; and other methods involved a combination or alternation of materials. All students involved in this study read below the tenth-grade level on the *California Reading Test*. Analysis of posttest scores did not reveal any group to be significantly better than any other; so it was concluded that it might be better to use one type, or difficulty level, of material rather than two. Gains obtained with the different methods were nearly equal and were significant for three of the methods but not for a fourth method which involved alternating work with the *SRA Better Reading Book 3* and the *Harvard Reading Materials*. While it was concluded that it was not necessary to have a tachistoscope or reading films to improve reading skills, it was found that students using a tachistoscope and films were the easiest to motivate. Spache, Standlee, and Neville (66) investigated three methods or approaches. One method involved a class centered around a reading workbook (Spache and Berg's *Art of Efficient Reading*); another class was centered around an audio-visual instrument (the Perceptoscope); a third group was an individualized self-

improvement class in which the students worked alone with periodic checks by the instructor. The *Diagnostic Reading Test* was used as a pretest and posttest instrument, as was also a locally prepared *Inventory of Reading Habits and Attitudes*. No significant differences in rate, vocabulary, or comprehension scores were found for any of the three methods. However, a significant difference in reading habits and attitudes of students was found in favor of the group which worked individually.

Tests

A considerable number of reports found were concerned, in main or in part, with reading tests or other tests bearing some relationship to reading programs. Among reports involving already existing tests was the one by Fauls (21). Fauls found, in his study of superior and mediocre readers, that when he made an extensive reliability study on the three forms of the *Harvard Reading Test* before he analyzed his main study data, statistical corrections needed to be made at both low and high speed ranges, with more correction being needed at the higher speeds. Garrett (26), in his attempt to determine the extent to which each of seven different tests predicted scholastic success, as indicated by first-year grades, of Trumbull Memorial Hospital School of Nursing entering students, found that *Iowa Silent Reading Test* scores made a significant contribution as predictors.

The *Cooperative English Test* was involved in several studies. Gutekunst (31) used it along with a number of art aptitude tests in an attempt to determine whether this group of standardized tests could serve predictive purposes with respect to freshmen and their ability to succeed in an art education program. The "Effectiveness of Expression" subtest was found to be one of the tests which predicted art achievement significantly. Kimbell (40) used the *Cooperative English Test* and the *STEP Reading Test* as part of the battery of standardized tests in his study of predictive value of these tests relative to academic success of women's college students. A number of significant differences in various test scores was found in groups of different classes; but relatively similar multiple correlations led Kimbell to conclude that the battery of tests was not of significant practical value for predicting academic success. Nunnery (58) found parts of the *Cooperative English Test* to be of some predictive value with regard to per-

formance of school administrators (as judged by ratings made on the *Tennessee Rating Guide*).

Harris (34) found that the predictors of academic success in the freshman year of college, in the case of a group which had been administered the *Diagnostic Aptitude Test* during the junior year in high school, were the Verbal Reading and Sentences subtests. Ketcham (39) reported to this conference last year the results of her studies to determine which of several screening tests were the best predictors of students' performances in college courses involving great amounts of reading. She found *College Entrance Examination Board* "Verbal" scores and Religion mid-year grades to be correlated slightly higher than were mid-year grades with either *Ohio State Psychological Test* reading scores or *Davis Reading Test* scores. Upon finding none of the sets of correlations significantly high, Ketcham felt that a different type of reading test was needed for predicting college performance.

King, Norrell, and Erlandson (42) found that Total Scores on the *Michigan State University Reading Test* predicted success in a Police Administration Program at a significant level. Success in the program was determined by grade-point averages. Michael, Jones, and Haney (54) found *California Reading Test* scores to be effective predictors of success in nursing training at Los Angeles County Hospital. They reported that a score at the 50th percentile seemed to be the lowest acceptable performance to insure success in the nursing school. The *Nelson-Denny Reading Test* gave among the lowest contributions to predictive power.

Several new tests have also been devised. Borgatta and Corsini described the construction of a "quick word test," which was designed as a quick-measuring intelligence test. (4) The test consists of 700 four-letter and five-letter words taken from a dictionary of the standard college type. Six independent forms, ranging from a college level of difficulty to lower level forms for testing retarded groups, have been constructed. Validity and reliability coefficients were obtained and reported. Englander (19) described an Instrument for Measuring Student's Attitude toward reading and other subjects and administered it to participants in a reading improvement course. Schmidt (65) reported at this conference last year the construction and validation efforts made by him and his colleagues at Purdue University with respect

to scales for measuring attitudes toward reading and attitudes toward a specific reading improvement course. Further study of the attitude scales described by Schmidt were being initiated at the time he gave his report. Halfter and Douglass (33) presented a further report on their *Commerce Reading Comprehension Test*. (An earlier report on this test was treated in the review of research presented to this conference two years ago.) Halfter and Douglass reported that the results that have been obtained with the test have been "sufficiently encouraging to continue holding to the thesis that there is emphasis on certain kinds of reading skills in a collegiate school of business and that those skills seemed to involve more than what is generally regarded as comprehension in reading" (33:229). They also reported that evidence accumulated at De Paul University College of Commerce suggests that a reading test of the type they have constructed plus a mathematics test may be a better predictor of success in college than are "ability tests."

Several investigators were concerned more with methods of testing or procedures to be used in testing than with construction or study of specific tests. King (41) scored six sets of recalled stories for accuracy by seven different methods. (He was trying to find a desirable system for measuring accuracy of written recall.) Two factors found to emerge after factor analysis of the data were the number of content words reproduced and total number of words produced. McDonald (47) reported at this conference last year concerning his investigation of effects produced on reading rate and comprehension by varying the length of the reading test selection and timing conditions and of the influence of certain personality traits on reading test performance. He found that rate was unchanged but that reading comprehension was significantly affected, adversely, by periodic interruptions; that reading performance did not appear to be affected significantly by length of reading passages; and that reading performance of students rated as "high anxious" on the *SAS Senior Scales* was significantly affected, detrimentally, by periodic interruptions.

Merenda and Macaluso (52) administered both a completely verbal type of achievement test and an illustration-form type of achievement test to "low verbal ability" adult groups. They found

presentation in either form producing approximately the same results.

The papers presented at an American Psychological Association Symposium in September, 1958, on the topic, "The Effects of Time Limits on Test Scores," have been published (53). The symposium was chaired by C. T. Myers; and participants included W. G. Mollenkopf, Edward J. Morrison, Herbert A. Toops, and Alexander G. Wesman.

Wright (75), in his efforts to find a more accurate way of measuring comprehension gains, administered tests over given material before the material was read, immediately after the material was read, and sometime after the material was read. The scores thusly obtained and other test scores were then used in correlation and other comparative analyses. Although it was found that a "difference score" score could be used for measuring comprehension gains, Wright concluded that such a score would have little value not already afforded by more readily obtainable immediate recall or memory scores.

Factors Influencing Reading and/or Study Skills

A number of reports was concerned with matters relating to factors which might have influence upon or bear some relationship to particular reading or study skills. Bryden (5), in comparing relative effectiveness of tachistoscopic presentation of letters and geometric forms found that when there was simultaneous presentation in both visual fields, both letters and forms were recognized more accurately in the left than in the right visual field. He found that the subjects were able to report tachistoscopically presented items in equal amounts for left-to-right and for right-to-left reporting orders; but subjects reported more accurately from left-to-right. He concluded that processes involved in letter recognition were strongly "polarized" in a left-to-right direction. Harris (69) also found a difference between scores for word recognition in the right visual field and those in the left visual field. This difference was significant while the difference for forms presented on left and right sides was not.

Kahill (9) defined various concepts in laboratory experiments by means of a series of negative examples or instances. A study of memory effects indicated that errors could be more often

attributed to forgetting than to lack of assimilating the information. Chansky (14), in an exploration of the influence of stress and types of information schedules on learning of paired associate nonsense syllables, found that stress as such had no effect on learning but that stress, together with intermittent information (rather than a schedule of continuous information), was associated with faster acquisition and greater retention. Gonzales and Cofer (30) found that use of inappropriate adjective modifiers had negative or disruptive effect on "clustering" and recall of items. Recall of adjective-noun pairs was found to be more difficult than recall of nouns. King and Cofer (42) found written reproductions of various types of passages which seemed to indicate relationship to the "adjective-verb quotient" (ratio of total number of adjectives in the passage to the total number of verbs), although it appeared possible that the actual numbers of adjectives and verbs might be more effective variables than the ratio itself. Best reproduction seemed to be obtained in the case of passages with "intermediate" and "low" adjective-verb quotients.

The influence of various types of personality characteristics or traits was investigated in some studies. Fauls (21) found that when reading test scores were compared with qualitative judgments based upon results obtained with several projective tests, "mediocre readers" were found to be "hysterical," while "superior readers" were found to be "obsessive-impulsive." McDonald (47), in his study of factors affecting reading test performances, found periodic interruptions to have a significant detrimental effect on the reading test performance of students rated as "high anxious" on the *SA-S Senior Scale*.

In their study of the relationships between emotional facilitation and vocabulary skill, Gladfelter and Krasilneck (29) used post-hypnotically induced emotional states. They found that induction of interest, fear, and anger in a subject increased vocabulary skill (as measured by performance on the vocabulary list from the Wechsler-Bellevue and WAIS tests). Post-hypnotically induced fear appeared to have the greatest facilitating effect. Fletcher (24), in a study utilizing cloze procedure techniques, found the ability to use context to be a significant factor in the "reading proficiency of the mature reader."

Hill (37) has presented a more detailed report of his study of discrimination effect of various measures with respect to college

freshmen with adequate reading comprehension. An earlier, but briefer, report was treated in last year's review (3). Findings in Milton's study of primitive thinking and reasoning among college students (55) led him to conclude that little or no relationship existed between the extent to which primitive (or childish) thinking was engaged in and the level of intelligence or education. He concluded further that his findings indicated the necessity for reexamining techniques used to teach logical thinking in students.

Gilbert (27) found the span of visual perception for slow readers to be affected or influenced more by interfering stimuli than was that of fast readers. He also found unequal influence on visual perception span to be exerted by varying periods of freedom from interfering visual stimuli following presentation of simple phrase material. A relationship was also found between length of fixation pauses used in reading simple phrase material and speed in processing different tachistoscopically presented phrase materials. In another study (28), Gilbert studied the effect of moving or presenting visual material along or across a line as compared with successive presentation of the same material in the same spot (so that eye movements are not required). He found both good and poor readers making more perceptual errors when reading with eye movements than when reading without. Greater losses in visual perception were found to occur in the case of poor readers when saccadic movements were involved than in the case of good readers; and slow readers appeared to need a longer time interval for stabilizing fixations to an effective point than did fast readers. Gilbert further concluded that both good and poor readers could process simple phrase materials faster and more accurately mentally than they actually do when reading with eye movements.

One-hundred-ten college students with various types of handedness who completed a reading program were studied with respect to various psychomotor skills by McConville (46). Subjects were divided into four groups: right-handed, left-handed, ambidextrous, and "functionally mixed dominance" (those who had changed handedness in childhood). The hand used consistently in writing, in holding a fork, and in throwing a ball was used as a criterion of handedness. McConville discussed obtained results in some detail. However, no significant differences among the groups were found. McMurray (48) had 76 students pair Eng-

lish words with foreign words (which the students did not understand or know) after reading them silently. He concluded that differences in the phonetic structure of unfamiliar words suggested the meaning of those words.

Robertson (62) found that, while differences in *College Qualification Test* scores, "Rate," "Vocabulary," and "Comprehension" scores on the *Diagnostic Reading Test*, and "VR" and "NR" scores on the *Differential Aptitude Test* were significantly in favor of a group of freshman engineering students over a group of freshman business administration students, the two groups did not differ significantly on any of the reading subtests.

Reading Characteristics, Status, and Habits of College Students and Other Adults

Adams (2) found Lamar State College of Technology freshmen achieving significantly below the median on the "English Mastery" area of the *Cooperative English Test* but not significantly below normal in other areas. Butler (7) found girls obtaining higher percentage scores and higher correlations with rank in high school graduating class on language arts tests (not named) administered upon entrance at Indiana University than did boys in the entering freshmen group. He concluded that girls were getting a better language arts foundation than were boys in high school. Over-achieving students in Deiner's study (17) did significantly poorer on the reading comprehension test of the *Cooperative English Test*, C2, than did under-achieving students. In his attempt to determine whether or not there were some scholastic differences between freshmen who took advantage of a summer "preview" orientation program and those who did not, Fahrback (20) found that "preview males" did significantly better on the English usage and reading vocabulary sections of the *Cooperative English Test*, C2. There were no significant differences with respect to the reading speed section or with respect to a number of other tests administered.

Reading rate of the "average" college student in one of Gilbert's studies (29) was given as 262 words per minute. Fraternity groups at Virginia State College were found to be significantly superior to non-fraternity groups with respect to a number of variables involved in a study (57), including scores obtained with the *Nelson-Denny Reading Test*. Personality scores (as

obtained with the MMPI) of the rural subjects tended to be more "normal" than those of urban subjects in O'Donnell's study of rural and urban groups of college freshmen (60). However, the total reading scores of the urban group on the *Cooperative English Test* were significantly higher than were those of the rural group. In a study reported by Robertson (62), scores obtained with the *College Qualification Test* and the "VR" and "NR" scores on the *Differential Aptitude Test* significantly favored the group of freshmen planning to major in engineering rather than the group planning to major in business administration. However, the two groups did not differ significantly with respect to "Rate," "Vocabulary," and "Comprehension" scores on the *Diagnostic Reading Test*.

A few reports involved reading status or scores of non-college adult groups. Burchill (6), comparing *Iowa Tests of Educational Development* scores of students in an adult high school program with scores of regular high school students, found no educational deficiencies in the adult group except in the case of younger males in the adult high school group. The subtest areas in which these males were significantly less competent included those of "English Grammar" and "Reading in the Natural Sciences." Cassell and Clark (12) reported that adult students in the Fontana adult school were felt to have a serious reading problem with respect to the program of instruction if they scored below a sixth-grade level on reading tests. A variety of reading tests and measures was indicated as being used in the school testing program.

According to a recent report (18), based on a U. S. Census Bureau report, eleven years of schooling have now been had by at least half the population (compared with 9.3 years in 1950). Approximately 43% of adults has completed high school (compared with 21% in 1940). Practically all Americans 14 years of age or over reportedly can now read and write, with the "illiterate" portion having fallen to 2.2%.

Siegle (23) found that the 250 business executives he interviewed about reading habits read much business material, newspapers, and magazines; but they averaged only four books a year. The business men reported reading relatively infrequently for pleasure and indicated that they usually read for information, help with a hobby, or self-improvement. They indicated that they

actually read very little for pleasure but more for relaxation so they could "work harder the next day." Junior executives who had received a Master's Degree in Business Administration at the graduate division of the University of Pennsylvania's Wharton School of Finance and Commerce were, however, not found too busy to read. Seven books a year was the average reading claim, with 39% claiming to read ten or more books annually. Approximately half the executives surveyed read at least one, and usually more, trade or professional publications regularly, with *Business Week* (40%), *Time* (38%), *Life* (33%), and *Fortune* (24%) topping the list. A *Publishers' Weekly* report (56), supposedly based on a survey, indicated that cross-word puzzles were the most popular leisure time pursuit for adults, with checkers, bingo, poker, pinochle, and bridge following closely. "Reading" was not listed.

Kingston (44) reported on the magazine and book reading of groups of University of Georgia graduates, the report being based on analyses of the personal history forms of the students. Magazines listed as being read regularly most frequently by 155 female students were *Life* (by approximately 24%), *Saturday Evening Post* (by approximately 10%), *Reader's Digest* (by approximately 13%), and *Ladies Home Journal* (by approximately 8%). Almost 13% of the women indicated that no magazine was read regularly. Of the magazines listed as being read regularly by 70 male college students, miscellaneous sports magazines were listed by approximately 17%, followed by *Life* (approximately 16%), *Look* (approximately 11%), and *Reader's Digest* (10%). Twenty-seven percent indicated that no magazine was read regularly.

Importance or Effects of Reading and Study Skills

Indications of the importance or effect of various reading and study skills were yielded in a number of reported studies. As might be anticipated, most of the findings indicated a positive influence; but there were some exceptions or debatable findings. Calia (10) used a discriminant analysis technique in a study to predict membership of Boston University Junior College freshmen in "failure," "terminal," or "transfer" groups. He inferred, on the basis of his findings, that students lacking in spelling and grammar skills need not be hindered in attaining academic success if they possess verbal aptitude for academic learning. How-

ever, it appeared that students who had poor verbal reasoning ability would be likely to experience some academic failure even if they possessed verbal mechanical skills. Tiedeman (71), in a criticism of Calia's study and of the discriminant analysis technique, maintained that some variables in Calia's study "were not given a chance to discriminate" (71:192); but he felt that a definite relationship of academic performance with scholastic aptitude and scientific and literary preference was indicated.

D'Amico, Bryant, and Prahl (15), in an investigation of the predictive validity of the *Multiple Aptitude Tests*, found a verbal comprehension factor (based on "Word Meaning", "Paragraph Meaning", and "Language Usage" test scores) to contribute significantly to prediction of academic success of Flint Junior College students in biology, psychology, foreign language, English composition, general business, and drawing. Speed of comprehension scores obtained with the *Cooperative English Test* were found to be among the efficient single predictors of academic success in Air Force Squadron Officers' School, although these scores ranked third among four sets of scores used for prediction purposes.

High achievers in both a group of two-year technical students and a group of four-year degree candidates in engineering were found to do better on vocabulary and paragraph sections of the *Pennsylvania State University Academic Examination*. The four-year students did significantly better as a group on these sections than the two-year students. Michael, Jones, and Haney (54) reported that a score at the median level (high school norms) on the *California Reading Test* seemed a minimal one to insure success in a Los Angeles County Hospital Nursing Training Program.

The *University of Pittsburgh Examination for Graduate Students* was found to be one of the best predictors among several investigated by Nuttall (59) of success in the graduate school of the University of Pittsburgh School of Education. The two highest correlations of the total score on the written portion of the certification examination given to Chicago Teacher's College graduates were the ones with the total scores on the *Cooperative English Test* and with the reading test portion of the *Cooperative English Test*. Partly as a result of this finding, it was recommend-

ed that remedial and developmental reading programs be considered for inclusion as part of the instructional program.

Findings in several studies were somewhat the opposite of those just reported. Haak (32) found that the improvement made by the highest 16 and the lowest 16 of a group of 80 students in a social science class did not appear to be influenced by intelligence or reading ability (as measured by the *Michigan State University Reading Test*). Palacios (61) found that a battery of several tests contributed considerably to prediction; but the *Nelson-Denny Reading Test*, which was included in the battery, tended to give among the lowest contributions to predictive power of the battery. Rogers (60) found various lecture listening skills not to be related significantly to achievement in the area of the lecture. However, he still concluded that the lecture listening skills were important. Sanders, Medford, and Bown (64) found a group high in both verbal and quantitative aptitude scores to rank highest in reading, the group high in verbal but low in quantitative aptitude to rank next best in reading, and the group high in quantitative and low in verbal aptitude to rank significantly lowest in reading (as measured by reading test scores). The group high in quantitative aptitude and low in verbal aptitude made as good grades in quantitative courses as did the group high in verbal but low in quantitative aptitude did in verbal courses; but the former group made better grades in verbal courses than did the latter group in quantitative courses.

Vineyard and Bailey (73), in a study of reading ability, listening skills, intelligence, and scholastic achievement relationships, found the several variables studied highly related to one another and to scholastic achievement. While "partialling out" procedures reduced relationships, such relationships still remained significant. Listening skill remained significantly correlated with achievement when both intelligence and reading were partialled out; and intelligence remained significantly related to achievement when both reading and listening were partialled out. However, when both intelligence and listening were partialled out, the relationship between reading and achievement fell below the level of significance.

Readability, Readership, and Other Areas

While readability studies of the standard or usual type were

not found reported, several of the studies had a relationship to or significance for readability and/or readership. Carlson (11) presented an original and a modified version of an article on foreign economics policy to two groups of college students. The altered version was modified by substituting for 22 original, and relatively unfamiliar, words in the article ones of a more common nature. Readings of the two versions by the students indicated that use of the less familiar words (found in the original version) led to a greater liking and respect for the author than did the use of familiar words. Haskins (35) presented a description of the development, validation, and cross-validation of a "title-rating" method for measuring reader interest for predicting readership. King and Cofer (42) used a "cloze technique" procedure in evaluating, for readability, stories varying in "adjective-verb quotient." They found that readability differences were not related to the "adjective-verb quotient" or its components or to the learnability (as reflected by recall) of the story.

Strang (60) received replies from 77 of the 95 colleges and universities to which she had sent requests for information in her study of preparation courses for teaching reading. She found that only half, or 38, of the schools responding mentioned or described one or two courses on teaching of reading at the secondary or college level; and only four institutions which did not offer any separate high school or college reading courses gave indications that they were hoping to have such courses in the future. Nine schools indicated that reference to high school or college reading was given in other courses. Eleven schools reported comprehensive programs in reading as a special area. In courses in which attention was given to reading above the elementary level most of the attention was directed toward the secondary, rather than the college, level. Strang interpreted information she obtained as indicating two main types of programs being offered. One type followed the idea that every teacher bears some responsibility for teaching in his subject (some of these teachers might be asked to teach a developmental reading course). The other type was for remedial teachers and other reading specialists. She felt that more courses of both types were needed on both secondary and college levels.

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**Persons in Attendance at the Tenth Annual Meeting of the
National Reading Conference, Texas Christian University,
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Barbara Sanders	Auburn University	Auburn
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Stanton P. Thalberg	Humboldt State College	Arcata
Bill W. Williams	Whittier College	Whittier
COLORADO		
Eugene F. Matthews	Air Force Academy	Colorado Springs
Risdon J. Westen	Air Force Academy	Colorado Springs
DISTRICT OF COLUMBIA		
George Stevens	U.S. Dept. of Agriculture	Washington
Evelyn N. Wood	Reading Dynamics Institute	Washington
FLORIDA		
Julia F. Sherbourne	Florida Presbyterian College	St. Petersburg
George D. Spache	University of Florida	Gainesville
Ailene B. Thompson	Florida State University	Tallahassee
GEORGIA		
Culbreth Melton	University of Georgia	Athens
Albert J. Kingston	University of Georgia	Athens
INDIANA		
Oliver Graebner	Valparaiso University	Valparaiso
Mrs. Oliver Graebner	Valparaiso University	Valparaiso
George B. Schick	Purdue University	W. Lafayette
IOWA		
William Eller	University of Iowa	Iowa City
KANSAS		
Mrs. Mary L. Douglas	Douglas Remedial Tutoring Center	Wichita
Miss Evelyn A. Hinton	University of Wichita	Wichita
Henry P. Smith	University of Kansas	Lawrence
Mary Margaret Williams	A.C. Junior College	Arkansas City
LOUISIANA		
Warren D. Fortenberry	Southeastern La. College	Hammond
Mrs. W. D. Fortenberry	Southeastern La. College	Hammond
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James Mansfield	Eastern Michigan University	Ypsilanti
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Mrs. Juanita Canterbury	Hinds Jr. College	Raymond
Mrs. W. M. McKenzie	Hinds Jr. College	Raymond
Sarah N. Taylor	Hinds Jr. College	Raymond
MISSOURI		
Mrs. Ruth Rogers Smith	Washington University	St. Louis
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Rosalie L. Fuller	Nebraska Wesleyan University	Lincoln
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 Murray College
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